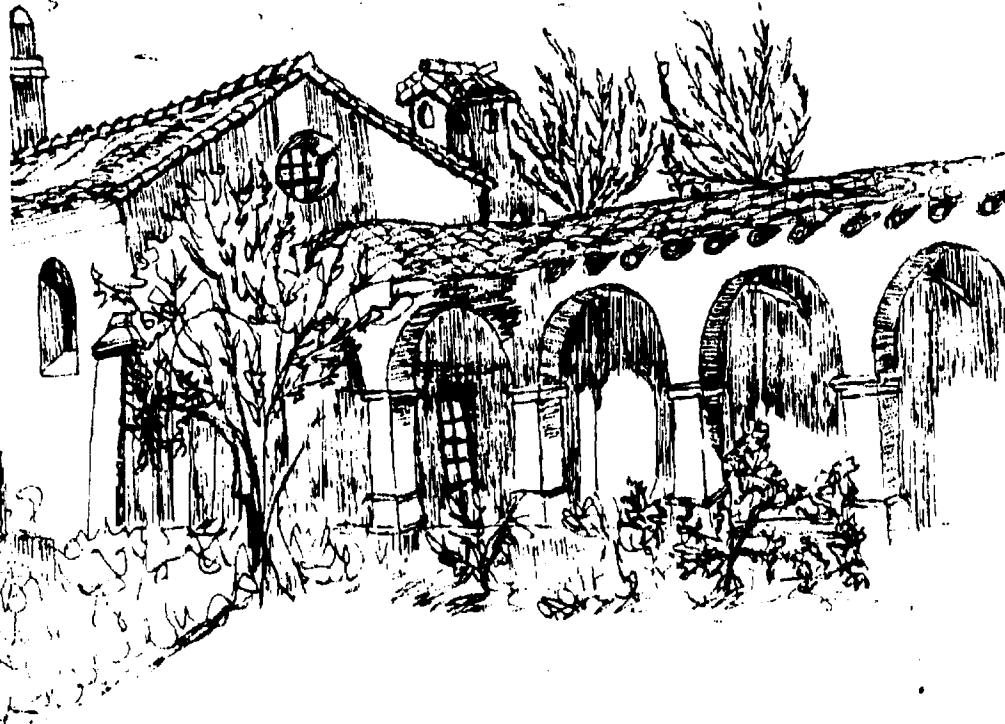


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AN ARCHAEOLOGICAL SURVEY OF THE SAN DIEGO RIVER

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SAN DIEGO STATE UNIVERSITY FOUNDATION

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

SAN DIEGO STATE UNIVERSITY

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SAN DIEGO STATE UNIVERSITY FOUNDATION

SAN DIEGO STATE UNIVERSITY

Department of the Army, Corps of Engineers

An Archaeological Survey

of the

San Diego River

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August 27, 1975

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INTRODUCTION

An archaeological survey of the San Diego River Valley from El Capitan and San Vicente dams westward to Interstate 5 was conducted between May 28 and June 2, 1975, for the Department of the Army, Corps of Engineers, as contracted by Dr. Paul H. Ezell, acting on behalf of the San Diego State University Foundation. The results of that survey and evaluations of the significance of archaeological and historic sites in the project area are included in this report.

The project area, as understood, is 500 yards wide, centered on the centerlines of the San Diego River and major tributaries. This area is considerably narrower in places than the area outlined on the project maps originally received by the San Diego State University Foundation. Many areas outside the 500-yard width were surveyed in order to assess indirect impact. ←

Prior to the commencement of field investigations, all information on recorded sites in the project area was requested and received from the San Diego Museum of Man and San Diego State University (see Appendices I and II). All accessible, relatively unimpacted land within the project area was surveyed on foot by a crew of six people. Considerable fenced grazing land was also surveyed. Developed and extremely impacted areas were driven and promising locations were spot checked.

Postholes were dug at one site (SDR-11) to try to determine the presence of buried archaeological material. The resulting collection

from this site consists primarily of very questionable artifacts, which will be stored at San Diego State University, where they will be available for further analysis.

The previously unrecorded sites found on the survey have been assigned temporary numbers, denoted by SDR- indicating San Diego River. Records of the sites found, and new information for previously recorded sites, will be filed at San Diego State University and the San Diego Museum of Man, where the new sites will be assigned permanent numbers.

In addition to the original 5 days of fieldwork done by the six-person crew, one 8-hour day was spent in the field by the supervisory and associate archaeologists, and portions of many days were involved in re-checking sites, ethnobotany, and photography.

The first 3.5 miles of the San Diego River west of El Capitan Dam were thoroughly surveyed. From this point west, primary effort was devoted to checking promising locations along the perimeter of the valley since the river bed becomes very wide, flat, and sandy. Few granite outcrops occur in the river bed, but rather near the bases of the hillsides, and since bedrock outcrops are generally necessary features of late prehistoric sites, it was concluded that surveying the river bottom would provide little information. Any sites of any cultural stage which may have ever been present in the river bed proper would have been washed away or covered by silt during any periods of high water. Many occurrences of isolated artifacts found in the sand have been reported, and have been accounted for by flood water deposition.

The perimeters of the San Vicente Creek valley below San Vicente Dam to Moreno Drive were thoroughly surveyed, as well as a good sample of the valley floor. Here, as in many places, it was decided that there was little point in surveying the centers of broad, sandy valleys since nothing was found in the areas sampled, and it seems reasonable to assume that few cultural remains could survive the forces of water.

Moreno Valley was checked in likely and accessible areas, since almost the entire center of the valley is occupied by residences, each surrounded by numerous corrals for goats, cattle, horses, etc. The perimeter is almost as solidly occupied, with modern residences, fenced fields, and livestock at nearly every likely spot for an archaeological site. A more thorough survey of Moreno Valley would require considerable time spent in contacting the residents to gain access permission prior to surveying.

In the El Cajon and Santee areas, again, likely and accessible areas around the perimeter of the valley were checked, since the valley itself is broad and flat, in many areas has been subject to extensive quarrying for sand and gravel, and in most other areas has been heavily developed. In these areas a number of small, rocky hills have remained relatively undeveloped and are impacted mostly by children playing and by motorcycle activity. Many of these knolls proved to have archaeological sites on them or at their bases. Many small areas of Santee have been surveyed for environmental impact reports in the past two years, and reports of these surveys have been consulted.

The Mission Dam and Mission Gorge areas were thoroughly surveyed

from the R 2 W/R 1 W line west to the gaging station half-way down Mission Gorge. An attempt was made to survey farther down the gorge, but it was found to have been completely altered by quarrying.

Mission Valley was primarily inaccessible or totally impacted by homes, businesses, motels, quarries, the stadium, golf courses, and freeways. The area was driven, and the few remaining possible areas were checked.

In the Alvarado Canyon area, the side canyon below Murray Dam was thoroughly surveyed. A survey of the Adobe Falls area (Germeshausen 1973) found no archaeological material, and the remaining areas of the canyon appear to be thoroughly impacted.

The history of the area was researched at the San Diego Public Library, the San Diego Museum of Man Library, through conversations with people encountered during the survey, and especially through conversations with Clayburn and Beatrice La Force, long term residents of San Diego County. Persons consulted during the preparation of this report are listed in Appendix IV.

ETHNOBIOLOGY

The area of the San Diego River survey is located in the Californian Biotic Zone (Munz and Keck 1959:10), with vegetation cover of the Coastal Sage Scrub, Chaparral, and Southern Oak Woodland types (Munz 1974:4). In this area of southern California, northward-facing slopes receive less sunlight than south-facing slopes, are cooler and wetter, and support heavy vegetation growth such as chaparral. The south-facing slopes receive more sunlight and are warmer and drier, and support the open, woody shrubs of the Coastal Sage Scrub type (Bakker 1972:70; Munz 1974:4-5). In the San Diego River valleys below El Capitan and San Vicente dams, vegetation generally follows this dichotomy on the slopes along the river course, with areas of Southern Oak Woodland on the valley floor. Where water is abundant, a rich riparian growth occurs, marked by such water oriented plants as Bulrush, Cattail, Willow, Cottonwood, and Sycamore.

Vegetation patterns in the river basin have been greatly altered by historic factors. In the valleys above Mission Gorge, decades of grazing and cultivation have brought about drastic changes in the ground cover, although areas of Coastal Sage Scrub and Chaparral and remnants of Oak Woodland still remain. Mission Gorge itself still supports riparian vegetation approximating natural conditions. Below the gorge, the lower river valley is so modified by development that little remains of native vegetation, and those native plants that still grow there, especially where water is brought to the surface by quarry

operations, do not necessarily occur in their original stands. Where the ground is not covered by roads, buildings, or parking areas, vegetation consists primarily of grass on golf courses, introduced weeds in vacant lots, and landscape plantings around commercial and residential buildings.

It was not within the scope of the archaeological survey to produce a complete botanical inventory of the San Diego River system below the dams. In the absence of a complete botanical list, this list of plants having aboriginal uses is based on observations made at three locations, supplemented by notes made at other places where plants of particular importance were noted. Primary observations were made in the El Monte Park area below El Capitan Dam, in Wildcat Canyon, and in the Mission Dam area. It is believed that these observations provide a fair sample of plant occurrences in the survey area.

The survey area lies within the territory occupied by the Kumeyaay (Southern Diegueño) Indians, who lived in what today comprises the greater parts of San Diego and Imperial counties and the northern portion of Baja California. North of the Kumeyaay are the Northern Diegueño, Luiseno, Cupeño, and Cahuilla cultures (Hedges 1975a). These five cultures all utilized similar arrays of plant species, and the uses correspond on many points--where information for a single plant exists for more than one group, it nearly always is the case that the uses are similar. For southern California, the most comprehensive ethnobotany for any group is Temalpakh, the thorough ethno-

botanical study of the Cahuilla (Bean and Saubel 1972). A manuscript by Hedges (1967) is the major source for the Northern Diegueno, and ethnobotanical information is contained in Sparkman (1908) for the Luiseño, and in Spier (1923), Lee (1937), and Cuero (1968) for the Kumeyaay. In the absence of a comprehensive ethnobotany for the Kumeyaay, the above sources have been employed to present a composite picture of aboriginal uses which have been recorded for plant species observed during the course of the San Diego River survey.

Within the study area, the primary vegetal food supply in aboriginal times was provided by the acorns of the Coast Live Oak (Quercus agrifolia). Acorns, a staple food throughout California, were processed by grinding, leaching to remove the bitter tannic acid, and cooking to make mush. Mortars in bedrock outcrops attest to the preparation of this food, and other bedrock grinding features may have been used in the acorn process. In addition to acorns, a wide variety of seeds, fruits, greens, roots, and occasionally stalks or flowers provided food, beverages, and condiments to the aboriginal population. Food supplies, especially oak, were significant factors in the location of aboriginal occupation sites. The native plant communities also provided a wide variety of plants used for medicinal, manufacturing, or ceremonial purposes. Although these plants would have been used as the occasion demanded, they probably were not significant factors in the location of habitation sites.

The following plant list is presented alphabetically by genus and species. Plant names are given according to Munz (1974), the latest

available authoritative reference on southern California flora.

Adenostoma fasciculatum (Chamise): used as a construction material for houses, ramadas, fences, acorn storage baskets, bows, and arrow foreshafts. The branches were bound together to make torches, and the roots were used for firewood, making coals favored for roasting. A gum deposited by a scale insect on Chamise was used as an adhesive, especially for arrow points. Medicinally, the leaves were boiled to make a wash for infected, sore, or swollen areas of the body (Sparkman 1908:205, 211, 232; Spier 1923:352; Lee 1937:53; Bean and Saubel 1972: 29-30).

Ambrosia psilostachya (Ragweed): boiled to make a dandruff treatment. Sparkman (1908:228) records the use of Ambrosia artemisiifolia to make an emetic. This plant, however, is not recorded for southern California; perhaps the common Ambrosia psilostachya is the emetic plant. Ragweed was used ceremonially as one of the plants lining the shallow pits in the girls' puberty ceremony, and garlands of Ragweed were worn by the girls undergoing the ceremony (Hedges 1967:46; Waterman 1910:286-287).

Anemopsis californica (Yerba Mansa): the roots were peeled, cut up, and boiled to make a remedy for pleurisy, stomach ulcers, chest congestion, and colds, and the bark was made into a tea which was drunk to cure ulcers or applied to sores as a wash (Bean and Saubel 1972:30).

Artemisia californica (California Sagebrush): brewed into a tea taken by women before each menstrual period to induce menstrual activi-

ty, and by pregnant women to assure comfortable childbirth and rapid post-natal recovery. It alleviated menopausal trauma, and was given to newborn babies one day after birth to flush out the system. The leaves were chewed fresh or dried and smoked with tobacco to cure colds, and were used in sweat houses for various cures. Hunters were purified in the smoke of burning Sagebrush and White Sage before going on a hunt (Sparkman 1908:199; Bean and Saubel 1972:42).

Astragalus sp. (Locoweed): the dried seed pods were pounded and used as a condiment (Bean and Saubel 1972:44).

Baccharis glutinosa (Mule Fat): the leaves were steeped to make an eyewash, the hair was washed in a solution of the leaves to prevent baldness, and the leaves and stems were boiled to make a decoction used in female hygiene. The limbs and branches were a favorite house construction material (Bean and Saubel 1972:46).

Beloperone californica (Chuparosa): the base of the flower was sucked for the nectar (Bean and Saubel 1972:47).

Ceanothus sp. (Lilac): the seeds were ground into flour and the wood was used as firewood. The leaves and berries were boiled to make a wash for itch, sores, or impetigo, and the leaves were boiled together with Coffeeberry leaves and salt to make a wash to treat Poison Oak (Hedges 1967:42; Cuero 1968:30; Bean and Saubel 1972:51).

Centaurium venustum (Canchalagua): the plant was boiled to make a tea drunk as a remedy for fever (Sparkman 1908:230; Bean and Saubel 1972:51).

Chenopodium sp. (Goosefoot): the shoots and leaves were boiled

and eaten as greens, and the seeds were parched and ground into flour. The entire plant was boiled to make a tea for stomach disorders. The root was grated or mashed for use as soap, and the sap was used to make gum (Sparkman 1908:233; Hedges 1967:26; Bean and Saubel 1972:52-53).

Chlorogalum pomeridianum (Amole): the bulb was crushed and used for soap, and the fibers of the bulb husk were used to make brushes (Sparkman 1908:234; Bean and Saubel 1972:54).

Cneoridium dumosum (Bushrue): used in an unspecified way as medicine (Sparkman 1908:231).

Cucurbita foetidissima (Wild Gourd): the seeds were ground into flour which was cooked to make mush. Medicinally, the root was macerated and applied to ulcers, the fruit pulp was used as medication for open sores, and the dried root was boiled to make an emetic or physic. The dried gourds were used for ladles, syringes, or rattles; the blossoms were used for a dye; and the fruit was used as soap (Sparkman 1908:229; Hedges 1967:45; Bean and Saubel 1972:57-58).

Cuscuta californica (Dodder): gathered by the handful for use as a scouring pad, and boiled to make an antidote for black widow bite (Hedges 1967:27; Bean and Saubel 1972:59).

Datura meteloides (Toloache): a potent hallucinogen, considered a sacred and dangerous plant. Toloache was administered to boys upon their initiation into the Toloache cult, in order to produce visions which would provide insights into the initiate's future life. It was used by shamans as the means of coming into contact with the supernatural world, and was taken to see the cause of illness for diagnosis,

and to divine the cure. Toloache pastes and ointments were used as pain killers and to cure venomous bites, and the leaves were steamed and the vapor inhaled to treat bronchial or nasal congestion (Sparkman 1908:221, 229; Hedges 1967:23; Bean and Saubel 1972:60-65).

Dichelostemma pulchella (Wild Hyacinth): the corms were eaten raw or boiled, and the corms and flowers were used as soap and shampoo (Sparkman 1908:234; Bean and Saubel 1972:~ 48).

Dudleya sp. (Live Forever): ethnographic sources note, without species identification, that Dudleya was eaten, that the young shoots and flower stems were eaten raw, and that the juice was used for an unspecified purpose (Sparkman 1908:232; Cuero 1968:27; Bean and Saubel 1972:67). Two species, Dudleya edulis and Dudleya pulverulenta, were noted on the survey.

Dudleya pulverulenta (Deer's Tongue): the leaves were cooked and bound over corns and callouses to remove them, and the root was boiled to make a tea taken to cure asthma. The leaves were chewed by children, sometimes with salt (Hedges 1967:32-33).

Eriogonum fasciculatum (Buckwheat): the edible young shoots and seeds provided food. A strong decoction was made from the leaves to treat headaches and stomach disorders, the flowers were steeped to make eyewash and brewed into a tea which was drunk to clean out the intestines and given to babies to cure diarrhea, and Buckwheat tea was said to cause the uterus to shrink back into position after childbirth (Hedges 1967:25; Bean and Saubel 1972:72).

Euphorbia sp. (Golondrina): recorded as a specific remedy for

rattlesnake bite, either in the form of a medicinal paste applied to the wound, or as a tea drunk as an antidote. The plant was boiled to make a solution used to bathe patients suffering from smallpox, chicken pox, or fever, and to treat earache, bee stings or other insect bites, and sores (Sparkman 1908:231; Hedges 1967:22; Cuero 1968:48; Bean and Saubel 1972:73-74).

Haplopappus squarrosus (Goldenbush): this may be the species of Haplopappus recorded as house construction material (Cuero 1968:25).

Heteromeles arbutifolia (Toyon): the berries were eaten cooked or raw (Sparkman 1908:232; Bean and Saubel 1972:77).

Juncus sp. (Juncus): one of the most important basketry materials, used as the sewing element in coiled baskets and as both warp and weft in twined utilitarian basketry. Juncus was used ceremonially to make mats used to wrap ceremonial objects for storage (Sparkman 1908:234; Hedges 1967:9-14, 50; Bean and Saubel 1972:80).

Lotus scoparius (Deer Weed): used in house construction (Bean and Saubel 1972:87).

Marah macrocarpus (Wild Cucumber): a purgative was made from the roots, and the seeds provided an oily ingredient for paints like those used in pictographs (Sparkman 1908:210, 229).

Matricaria matricarioides (Manzanilla): boiled to make a tea drunk by women following childbirth, taken as a cure for upset stomach, diarrhea, and colic, and administered to babies suffering from fever (Hedges 1967:46; Bean and Saubel 1972:88).

Mirabilis californica var. californica (Four O'Clock): the leaves

were boiled to make a purgative (Sparkman 1908:232).

Muhlenbergia rigens (Bunch Grass): a major basketry material, used for the foundation of nearly all coiled baskets (Sparkman 1908:234; Hedges 1967:9-14, 51; Bean and Saubel 1972:89-90).

Opuntia sp. (Prickly Pear): the green fruit was cooked like pumpkin, the fresh fruit was eaten raw, the pads were cleaned of spines and cooked as a vegetable, and the seeds were ground and eaten. The spines were used to apply tattoos, using charcoal as the pigment (Sparkman 1908:230; Spier 1923:336, 342; Hedges 1967:24; Cuero 1968:27; Bean and Saubel 1972:97).

Pellaea mucronata var. mucronata (Bird's Foot Fern): the rootstocks were boiled to make a medicine for hemorrhage, and the leaves were brewed into a tea used both medicinally and as a beverage. As a charm, the roots were broken up and scattered around the house to keep animals and enemies away and encourage friends to visit (Sparkman 1908:234; Hedges 1967:17).

Phoradendron tomentosum ssp. macrophyllum (Mistletoe): the entire plant was cooked to make a remedy for dandruff; mistletoe growing on Sycamore is specified. The entire plant was also mashed and mixed with mud, to be applied to the head to kill vermin (Spier 1923:341; Hedges 1967:42-43).

Platanus racemosa (Sycamore): limbs and branches were used in house construction, and bowls were made from the wood. Sycamore bark boiled in Ephedra tea was taken to treat asthma (Hedges 1967:36; Bean and Saubel 1972:105).

Populus fremontii (Cottonwood): the wood was used for manufacturing tools and wooden mortars, and was burnt as firewood; the bark provided fibrous material; and the inner bark was used to make women's aprons, a standard article of dress. Medicinally, Cottonwood leaves and bark were boiled to make poultices to relieve the swelling and pain of muscle strains, sprains, and broken bones; the leaves were sometimes bound on, or the sore area was soaked or bathed. The same solution was used to treat cuts, and a handkerchief soaked in it was tied around the head to relieve headaches. Cottonwood charcoal was used for tattoo pigment (Sparkman 1908:233; Spier 1923:342; Hedges 1967:39; Bean and Saubel 1972:106).

Prunus illicifolia (Holly-leaved Cherry): the fruit was eaten or pressed to make a drink, and the seeds were ground, leached, and boiled to make atole or formed into cakes and baked. The bark was used to make an infusion for curing colds (Sparkman 1908:232; Hedges 1967:34; Cuero 1968:30; Bean and Saubel 1972:120).

Quercus agrifolia (Coast Live Oak): the oak provided acorns, the staple food crop of the historic aboriginal culture of western San Diego County. Acorns were prepared in the highly specialized process involving shelling, grinding, leaching to remove the tannic acid, and boiling to make mush. Acorns were gathered in the fall and stored for use throughout the year. The acorn process is well documented in the ethnographic literature (Sparkman 1908:193-194; Spier 1923:334-335; Lee 1937:241; Hedges 1967:4-8; Cuero 1968:30-31; Bean and Saubel 1972: 121-129). Small implements such as awl handles and stirring paddles

were made of oak, and the wood was favored for making wooden mortars. The bark was used in dyeing and tanning, the wood was ideal for firewood, and oak bark was considered the best fuel for firing pottery. Acorns were used for musical instruments, games and juggling, and necklaces. An antiseptic wash was made by boiling oak bark, or by soaking oak bark or oak ashes in water (Hedges 1967:38; Bean and Saubel 1972:129-130).

Quercus dumosa (Scrub Oak): Scrub Oak was considered an inferior food crop, utilized only if the other acorns failed. Scrub Oak branches were sometimes used in acorn storage baskets or employed in making cradleboards. Oak galls were broken up or ground and boiled to make a solution used as eyewash, physic, or medicine for sores and wounds (Sparkman 1908:233; Hedges 1967:4, 37-38; Bean and Saubel 1972:123, 129).

Rhamnus californica (Coffeeberry): the berry was eaten as a cure for constipation, the bark was boiled for physic, and the bark was boiled with salt for use as a wash in treating Poison Oak. The branches were used in the construction of acorn storage baskets (Spier 1923:347; Hedges 1967:41-42; Bean and Saubel 1972:131).

Rhamnus crocea (Redberry): the berry was eaten (Bean and Saubel 1972:131).

Rhus integrifolia (Lemonadeberry): the acidic fruit was soaked in water to make a beverage, and a wad of leaves was kept in the mouth to assuage thirst on long journeys (Hedges 1967:44; Bean and Saubel 1972:132).

Rhus laurina (Laurel Sumac): boiled and used for bathing or drunk

as a tea by women at the time of childbirth (Cuero 1968:44).

Rumex sp. (Dock): the stalks were eaten as greens, the roots were used in tanning hides, and a decoction of the root was used medicinally (Sparkman 1908:233; Bean and Saubel 1972:135).

Salix lasiolepis (Arroyo Willow): used for bows, acorn storage baskets, house construction, cradleboards, and the large needles used in house thatching. Women's skirts were made from the soft inner bark of Willow, and a decoction of Willow bark was used to bathe newborn infants. Willow charcoal was used as a tattoo pigment (Sparkman 1908: 211, 233; Spier 1923:342, 347, 350; Lee 1937:52, 60, 79-81, 133, 146; Hedges 1967:40; Cuero 1968:25, 44).

Salvia apiana (White Sage): the seeds were ground and used for mush or as a condiment; crumbled dried leaves were sometimes used in the same way. The young shoots and leaves were eaten raw. Colds, flu, and other respiratory ailments were treated with tea made from the leaves, and the tea was also drunk to cure Poison Oak rash. The leaves were eaten, smoked, or used in the sweathouse to cure colds; the seeds were used as eye-cleaning agents; and the leaves were crushed and applied to the body to eliminate odors. The leaves were burned to purify men and weapons which had been in the presence of menstruating women, leaves of White Sage and California Sagebrush were burned to purify hunters, a hunter's weapons could be purified by steaming them over White Sage leaves, and after a death the house and any persons connected with the dead person could be purified with burning White Sage leaves (Sparkman 1908:199, 229; Spier 1923:335; Lee 1937:63; Hedges 1967:30-31; Bean

and Saubel 1972:137). Among the Northern Diegueño, two of the plants used to line the pit in the girls' puberty ceremony were White Sage and Ragweed. As part of the Luiseno puberty ceremonies, lumps of ground White Sage seed and salt were given to the boys, who were required to spit them into a pit in the center of the sand painting. It is likely that the lumps of "sage-seed and salt" recorded for Luiseno boys' and girls' ceremonies and for the Northern Diegueño boys' ceremony were also White Sage (DuBois 1908:83, 96; Sparkman 1908:222; Waterman 1910: 286-287, 304). A short apron of White Sage twigs was sometimes worn by Kumeyaay men, for an unspecified purpose (Spier 1923:340).

Salvia columbariae (Chia): the seeds of chia were parched and ground to make cakes and mush, a beverage was made from unground seeds soaked in water, the seeds were added to other foods for flavor, and a small quantity was held in the mouth on long journeys and chewed to give strength. Chia mush was used as a poultice, individual seeds were used as eye cleaners, and alkaline water could be made palatable by adding chia (Sparkman 1908:229; Hedges 1967:30; Bean and Saubel 1972:137).

Salvia mellifera (Black Sage): the seeds were parched and ground into meal, and the leaves and stalks were used as a condiment (Sparkman 1908:229; Bean and Saubel 1972:138).

Sambucus mexicana (Elderberry): the fruit was eaten fresh, or dried for later use. The wood was used for bows, the fruit and bark provided basketry dyes, twigs and branches were made into whistles and flutes, and the stems were hollowed out for use in smoking tobacco. Medicinal tea was brewed from the blossoms and taken to treat fever,

colds, flu, female complaints, stomach disorders, and diarrhea. This tea was considered beneficial for newborn infants, and was also used to bathe them. A tea prepared from Elderberry roots was used to remedy constipation (Sparkman 1908:195, 205, 211, 229; Spier 1923:315; Lee 1937:138-142, 214, 243; Hedges 1967:44-45; Cuero 1968:44; Bean and Saubel 1972:138).

Scirpus sp. (Bulrush, Tule): the young shoots were eaten raw, the roots were ground into sweet flour, the seeds were eaten raw or ground for mush, and edible cakes were made of the pollen. The stalks were used for bedding, mats, weaving, and roofing, the stems were used in basketry, and the stalks were used to make ceremonial bundles and images for the image-burning ceremony (Sparkman 1908:234; Bean and Saubel 1972:139).

Solanum sp. (Nightshade): the juice of the berry was used for sore or infected eyes (Bean and Saubel 1972:140).

Toxicodendron diversilobum (Poison Oak): the roots reportedly were used to make a tea which was taken in small quantities to provide immunity to Poison Oak. In an isolated case, it has been reported that the roots were also boiled to make an eyewash (Hedges 1967:43; Bean and Saubel 1972:132).

Typha sp. (Cattail): the roots were dried and ground into meal, and the pollen was made into cakes and mush. The roots were used medicinally to heal bleeding wounds, and the stalks were utilized in making matting, bedding, and ceremonial bundles (Bean and Saubel 1972: 142-143).

Urtica holosericea (Nettle): the leaves were eaten either raw or boiled, and fiber from the stems was used for bowstrings, cordage, and basketry, though it was considered inferior. Nettles were pressed against the skin as a counter-irritant in the treatment of arthritis, rheumatism, muscular stiffness, backache, and headache, and young men, as part of their Toloache initiation, were whipped with nettles (Sparkman 1908: 233; Hedges 1967:40-41; Bean and Saubel 1972:143-144).

Vitis cordiana (Wild Grape): the fruit was eaten fresh or cooked, and was dried for later use. The sap was rubbed on the hair to keep it healthy (Sparkman 1908:231; Hedges 1967:41; Bean and Saubel 1972:144).

Yucca whipplei ssp. *whipplei* (Whipple Yucca): the stalks were baked in a pit oven and eaten, or they were dried after roasting and ground and mixed with water to form cakes. The flowers were parboiled and eaten as a vegetable, and there is one report that the fruit was eaten. The fibers were used for cordage, but this was considered inferior to other types of fiber (Sparkman 1908:234; Hedges 1967:47; Bean and Saubel 1972:150-151).

Besides those plants with known aboriginal uses, several plants with no known uses were noted. This list is included here for completeness in presenting data gathered on the survey, but it should be noted here that a complete botanical list was not a task of the survey, and numerous other plants were not listed.

- Antirrhinum* sp. (Snapdragon)
- Baccharis sarothroides* (Baccharis)
- Convolvulus* sp. (Morning Glory)
- Eremocarpus setigerus* (Dove Weed)
- Lupinus* sp. (Lupine)

Mimulus sp. (Monkeyflower)
Phacelia sp. (Phacelia)
Scrophularia californica var. floribunda (Bee Plant)
Sidalcea malvaeflora asp. sparsiflora (Wild Hollyhock)
Xanthium sp. (Cocklebur)

In addition to native plant species recorded on the survey, a number of major introduced species were noted. These plants were not present in aboriginal times, and there are no truly native uses for them. Several of these plants were used in ways learned from Spanish and later newcomers, with whom the plants entered the area as weeds, but such uses do not represent aboriginal plant utilization in a pre-contact situation. In addition to the plants noted here, a wide variety of ornamentals and cultivated plants is present in association with residences, farms, ranches, and parks in the river valleys.

Arundo donax (Giant Reed)
Avena fatua (Wild Oat)
Brassica sp. (Mustard)
Bromus sp. (Foxtail)
Centaurea sp. (Thistle)
Erodium sp. (Filaree)
Eucalyptus sp. (Eucalyptus)
Foeniculum vulgare (Fennel)
Malva parviflora (Cheeseweed)
Marrubium vulgare (Horehound)
Nicotiana glauca (Tree Tobacco)
Opuntia sp. (Cultivated Prickly Pear)
Raphanus sativus (Wild Radish)
Ricinus communis (Castor Bean)
Salsola iberica (Tumbleweed)
Schinus molle (Peruvian Pepper Tree)
Schinus terebinthifolius (Brazilian Pepper Tree)
Tamarix sp. (Tamarisk)
Taraxacum officinale (Dandelion)
Trifolium sp. (Clover)

Numerous animals were sighted or identified from sign on the survey.

Jackrabbits (Lepus californicus) and Cottontails (Sylvilagus auduboni)

were primary sources of meat, and the skins were used to manufacture rabbitskin blankets. One Deer was seen below San Vicente Dam. Deer (Odocoileus hemionius) were hunted with bow and arrow as a major source of meat for food, and deerskin, bone, and sinew for a variety of purposes. Ground squirrels (Citellus sp.) and Wood Rats (Neotoma fuscipes) were also utilized for food. Other mammals noted on the survey, but not recorded as food sources, include Bobcats (Lynx rufus), Skunks (Mephitis mephitis), and the footprints of an unidentified animal, probably Raccoon (Procyon lotor) or Opossum (Didelphis virginiana). Of birds noted on the survey, Quail (Lophortyx californicus) were an important food source, and Mourning Doves (Zenaidura macroura) were also eaten. Hawks (Buteo sp. and other genera) and Ravens (Corvus corax) had ritual significance, and their feathers were used in ceremonial costuming. Rattlesnakes (Crotalus sp.) are mentioned as a food source, but there is no record that the small lizards, Horned Lizards (Phrynosoma sp.), and non-venemous snakes noted on the survey were used as food (Sparkman 1908:197-199, 208; Spier 1923; Lee 1937; Hedges 1967:54-55; Almstedt 1968:11; Hedges 1973).

CULTURAL HISTORY

The cultural history of the San Diego River Valley can be divided into two parts, the prehistoric period of aboriginal occupation of the area, and the historic period following the arrival of Europeans. The prehistory can best be discussed by dividing it into the three stages of development currently recognized in the San Diego area. The history, on the other hand, is more easily discussed by dealing with particular places.

Prehistory

The prehistory of the San Diego River Valley must be drawn from general knowledge of the prehistory of the area, since there are few published studies dealing specifically with the valley.

San Dieguito Complex. The earliest known occupation in the San Diego area is represented by artifacts of the San Dieguito Complex (Rogers 1939). It has been generally agreed by archaeologists in the area that the life style represented by this complex was practiced from approximately 11,000 to 7,500 years b. p. (before the present) (Rogers et al. 1966:140) and evidence is increasing for the occupation of the San Diego area even earlier. In 1971 an artifact assemblage was discovered in Buchanan Canyon, a tributary of Mission Valley in San Diego, that, in the opinion of its discoverers, probably represents an early man occupation "tentatively dated at a point in time far earlier than any presently accepted radiocarbon dates on early man in the New World" (Moriarty and Minshall 1972:12). Additional arti-

facts were recovered from an excavation at Buchanan Canyon in 1973, but a firm date has not been obtained for the site. The formation in Buchanan Canyon from which the artifacts were recovered is related to the formation near Texas Street from which a controversial date beyond the carbon-14 range of 35,000 b. p. (Carter 1957:318) was obtained for a supposed hearth. Within recent weeks another site of the Buchanan Canyon type has been reported in a canyon east of the intersection of 70th Street and Interstate 8; this site was filed with the Museum of Man too late to appear in the record search done for this survey (Hedges 1975b).

In addition to the Texas Street/Buchanan Canyon date, a dating method recently developed by Jeffrey L. Bada was applied to a skull collected near Del Mar, north of San Diego, by M. J. Rogers. The date obtained was approximately 48,000 b. p. (Bada, Schroeder and Carter 1974:792), much earlier than most estimates for the San Diego area. Final evaluations of these two early dates remain to be made by the general scientific community.

The San Dieguito Complex has been typified by large stone tools such as planes, scrapers, knife blades, large projectile points, and small crescentic flaked stones (Davis, Brott and Weide 1969:75), although scrapers and planes of the same basic forms as the large ones have been found with diameters no more than one to two inches. San Dieguito artifacts found on the surface are characteristically heavily patinated, indicating considerable age. Burial patterns for the San Dieguito Complex have not been defined. Based upon technical refine-

ments in tool manufacture, this complex has been divided into three phases: San Dieguito I, San Dieguito II, and San Dieguito III. San Dieguito II and III have been found in the San Diego area, but the earliest phase, San Dieguito I, has not been found west of the Laguna Mountains, unless it is represented by the Buchanan Canyon artifacts.

La Jolla Complex. The La Jolla Complex, defined by M. J. Rogers (1939), followed the San Dieguito Complex in the coastal area. The earliest published date obtained for this complex is 7,300 b. p. (Hubbs, Bien and Suess 1960). The main change from the San Dieguito Complex to the La Jolla Complex is an apparent shift in subsistence from a primarily hunting economy to an emphasis on gathered foods. This is manifested in ground stone milling tools such as manos, metates, pestles, and mortars for the processing of vegetal foods; roughly flaked stone tools apparently used for breaking open shellfish; and large deposits of broken shell. Many tool forms known from the San Dieguito Complex continued in use, along with the new milling tools. Inhumation has been found to be the burial practice in La Jolla sites. La Jolla sites are characterized by rich deposits of dark midden, shell, and ground and flaked stone tools, and are generally found along the coast and short distances up drainages emptying into the ocean.

Late Prehistoric Period. Following the La Jolla Complex, pottery making, cremation rather than inhumation of the dead, and small, finely worked projectile points were introduced into the San Diego area. These traits obviously originated farther east in the Southwest region and apparently gradually spread west to San Diego. No conclusive dates

have been established for the introduction of pottery to the San Diego area, but it is generally accepted by local archaeologists to have been less than 1,000 years ago.

Late prehistoric sites are characterized by dark midden, pottery sherds, manos, portable metates, pestles, mortars, flaked stone tools, and waste flakes from tool making. In the San Diego River area, sites are generally found associated with bedrock outcroppings, oak trees, and fresh water. Milling features such as slicks, basins, and mortars are found on the bedrock, where apparently acorns and other nuts and seeds were processed. The pottery type found in the San Diego area is known as Tizon Brown Ware, which is generally plain, although sherds decorated with red ochre paint or incising are occasionally found. Various size pots from small bowls to huge water and storage ollas were made, as well as clay pipes for smoking tobacco, and small figurines and effigies. The small, finely worked projectile points associated with these sites are frequently made of obsidian from the Salton Sea east of the Laguna Mountains.

This cultural pattern was present when the Spanish settled in California in 1769. The Spanish named the local inhabitants Diegueños after the Mission San Diego de Alcala, and the later American settlers referred to the majority of aboriginal Californians in this area as Mission Indians. The original people of this area called themselves Kumeyaay (Southern Diegueño), and their descendants have recently begun to refer to themselves by the old name again.

It is a general practice of archaeology not to apply a linguistic

or cultural name of a historically known group to a prehistoric cultural pattern, since it is difficult to prove a direct relationship between prehistoric artifacts and a historic people. Therefore, the terms Hakataya (Schroeder 1960) and Patayan (Willey 1966) have been suggested to replace the term Yuman, long applied by M. J. Rogers (1945) to the late prehistoric culture in most of San Diego County. Neither of these terms, however, has been generally adopted by local archaeologists.

In the San Diego area it is obvious that the prehistoric people occupying the area just before Spanish contact were the same as the Kumeyaay, but it is uncertain how far back in time the name Kumeyaay can be used, since earlier cultural changes not manifested in material objects cannot be known. Therefore, in this report, all previously unrecorded sites will be referred to as late prehistoric if they are of that period. Also, many sites occupied prehistorically were also occupied in historic times, but it would probably require excavation to determine when the sites were last occupied.

Large Indian villages recorded by the Spanish when they arrived are the village of Cusoy, where Old Town grew up, and the village of Nipaguay, where the mission was finally established. Ethnographic sources record that many Indians lived in Mission Valley, up Mission Gorge, in Lakeside and El Cajon valleys, and in a village that was located at Mission Dam (Cuero 1968:23-24). Indians were gradually pushed farther and farther east into the mountains by European settlers, and some whose homes had been in Mission Valley even moved to Baja California (Cuero 1968).

Historical Developments

The recorded history of the San Diego River begins with the arrival of the Portola expedition and the establishment of the first mission church in Alta California under Father Junipero Serra in 1769. The history of the San Diego River is conveniently discussed by dividing the study area into regions: Mission Valley from the upper end of Mission Gorge to the present flood control channel opposite Old Town; the communities of Santee, Lakeside, and Foster; and the El Monte district, through which the San Diego Flume passed.

Mission Valley. The major historical resources of Mission Valley and Mission Gorge relate to the Spanish settlement of San Diego and the subsequent growth of Old Town as a Mexican and American community. The major historical sites are well known, and virtually nothing else remains.

The original mission and presidio of San Diego were situated on a hill overlooking the mouth of the San Diego River, above the site of the Indian village of Cosoy. Today, the site is occupied by Presidio Park, and ongoing excavations of the original presidio site have been conducted by San Diego State University and the San Diego Historical Society since 1965 (Brockington and Brandes 1965). Farther up on the hill is the site of Fort Stockton, which was occupied by the Mormon Battalion in 1847. At the foot of Presidio Hill lies Old Town, the small community which was San Diego until Alonzo Horton was successful in moving the town three miles south to the shore of San Diego Bay in the late 1860's (Smythe 1908:326-329). The major Spanish, Mexican,

and early American historical sites in Old Town have been inventoried and marked as historical landmarks, and are included within the boundaries of Old Town San Diego State Historical Park.

In 1774, in order to separate the mission from the influence of the presidio and to bring it closer to the Indian populations and to arable lands and water, Father Serra moved Mission San Diego de Alcala to the site of Nipaguay, an Indian village located on the north side of the river $5\frac{1}{2}$ miles upstream from Presidio Hill. The new mission at this site continued to work among the Indians until 1824, when the new Mexican Republic parceled mission lands out to favored Mexican families. In 1832 Mexico passed the secularization act, and Franciscan control of the mission itself was relinquished in 1846. In 1847 the mission was occupied by American troops and used as military quarters until the late 1850's. In 1862, President Lincoln authorized the return of mission property to the church, and in the 1890's the Franciscans began restoration of the church. Efforts to fully restore the mission were begun in the 1920's, but it was not until the 1930's that the church and part of the south facade were reconstructed. These reconstructions form the central part of the mission complex as it exists today (Figure 1). Since 1966, the University of San Diego has conducted archaeological excavations at Mission San Diego, revealing important features of the early Spanish structures and a military cemetery from the period of American occupation (Smythe 1908; McGrew 1922:5-25; Moriarty and Weyland 1971; Reck and Moriarty 1972).

One of the most remarkable accomplishments of the Spanish period

was the Mission Dam and flume constructed in Mission Gorge, six miles above the mission, to impound San Diego River water and conduct it to the mission for irrigation and domestic use. Constructed of stone and cement with a brick-lined spillway, the dam was 220 feet long and 13 feet thick. The flume was built of tile on a stone and cement foundation. Construction of the dam was begun in 1807, and by 1814 nearly four miles of flume had been completed. With a dependable water supply, agriculture at the mission flourished, with successful vineyards and orchards (McGrew 1922:21-22; Papageorge 1971:15). Remains of Mission Dam are visible today (Figure 2), and the site, currently maintained as a city park, is listed as a national and state landmark on the National Register of Historic Places, the Natural Resources Inventory of San Diego County, and the historic sites list of the City of San Diego Historical Sites Board. The old flume is no longer visible, but archaeological tests in 1971 showed that its remains are still present beneath the ground downstream from the dam.

The presidio site and Old Town, the San Diego Mission, and Old Mission Dam are the primary historic remains in the lower San Diego River Valley. In the late 1800's and early 1900's, Mission Valley was an area of rural activity, primarily agriculture and grazing, and the city water supply was pumped from wells in the valley. The history of the development of Mission Valley and the role of the San Diego River in this development has been well summarized by Papageorge (1971), and a repetition of this data would serve no purpose here. A copy of Papageorge's 1971 paper is appended to this report. Historic struc-

tures from the post-mission periods, including remains of pumping activities, the City Isolation Hospital, and early dairy buildings and houses, have not survived.

Santee. The history of Santee has recently been summarized by Fink (1975), whose paper forms the basis for this section. During mission times the entire El Cajon Valley, including Santee and Lakeside, was used for cattle grazing. The El Cajon Rancho, encompassing 48,799 acres, was granted to Maria Antonia Estudillo Pedraarena by governor Pio Pico in 1845. Cattle grazing was the primary activity until about 1870, when the land was divided up and sold and agriculture, primarily orchards and vineyards, became the main activity.

Among early settlers of the American period were George Cowles and Milton Santee. Cowles came to the area in 1878 and founded the raisin industry in San Diego County, raising grapes, fruit, and nuts on 4,000 acres; Cowles Mountain southeast of Santee is named after him. Cowles died in 1887 and his widow married Milton Santee, after whom the town was named when the post office was established in 1891. In 1884 Homer P. McKoon purchased 10,000 acres in the valley, later subdividing 2,000 acres of it into small tracts. By 1889 the San Diego, Cuyamaca, and Eastern Railroad reached Santee. The region remained a center for fruit growing and cattle raising until the 1950's. Since the 1950's, vast areas of Santee have been covered with housing tracts and the area today is mostly urbanized, serving as a residential suburb of San Diego.

A historical survey in 1975 (Fink 1975:9-10, 12) revealed no

historic structures or sites of record in the Santee area. An old adobe south of Carlton Oaks in Santee is mentioned in historical sources, but no trace remains and the site is unknown. The Edgemoor County Farm was established in 1923, and includes a fine example of an early 20th century barn; in 1955 its name was changed to Edgemoor Geriatric Hospital (San Diego Union 1961). The history of Edgemoor Farm deserves further research.

Lakeside. Lakeside had the name Aha-ta-Munk, meaning "water filled up," in the Kumeyaay Indian language. The name referred to a small natural lake, which later became the focus of the new town. Originally part of the El Cajon Rancho granted to Maria Pedroarena in 1845, Lakeside began its existence as a community in 1886, when the El Cajon Valley Company subdivided the land and laid out a townsite around the lake, which had been named Lindo Lake (San Diego Union 1886; Beadle 1945:12).

Lakeside was a product of the San Diego boom period, when land speculation proceeded at a furious pace. Newspapers of the 1886-1903 period contain glowing descriptions of Lakeside as a health resort, hunters' paradise, and garden valley, with orchard and raisin culture and many prosperous ranches and elegant homes. Quarrying was conducted on a commercial scale in 1939, but the area throughout its brief history has been devoted primarily to ranching, poultry raising, dairying, and agriculture, mostly orchards of citrus and avocados. An interesting agricultural activity was the Maniscalco Cactus Gardens (Figure 3), which were noted in the 1930's and 1940's as shipping large quantities

of cactus apples to Italian markets in eastern cities; in later years cactus candy was also manufactured (San Diego Union 1886-1939; Beadle 1941, 1945; La Force 1975).

The Lakeside Hotel was built in 1886-1887 and was operated in its early years by Beatrice Swycaffer Price. In the early 1900's the hotel was operated by John Gay, who planted the rows of cork elm trees which line the south approach to Lakeside. In 1906 Gay constructed a 2-mile auto track at the hotel, and by 1907 he was holding auto races and "other thrilling contests," including attempts by Barney Oldfield to set new speed records (San Diego Union 1906, 1907; Chaney 1971:30). If it existed today, the Lakeside Hotel would be a historical landmark of major importance, but it was torn down in 1918 and the lumber was salvaged by the La Force family, who used it to build a house in Japatul Valley, east of Alpine (San Diego Union 1886-1887, 1934; Davidson 1936: No. 127; La Force 1975). The site of the Lakeside Hotel is not marked today, but a detailed historical inventory may reveal its location and the presence of other significant buildings and sites. A church dating from the 1890's and several houses built in the late 1800's and early 1900's are located in Lakeside and are of historical significance (Carriico 1975).

The San Diego, Cuyamaca, and Eastern Railroad was completed to Lakeside on March 31, 1889, and to its terminus at Foster in 1890. When the railroad to Foster was destroyed in the flood of 1916, Lakeside became the eastern terminal of the railroad, which by this time had been acquired by the Spreckels family and consolidated with the

San Diego and Southern to become the San Diego and Southern Eastern. In 1917 the railroad was again consolidated, this time with the San Diego and Arizona to become the San Diego and Arizona Eastern. The Lakeside station was closed on November 13, 1937. Today, the San Diego and Arizona Eastern terminates in El Cajon. In the 1950's, the La Mesa station of the San Diego and Arizona Eastern was moved to Lakeside, and both the Lakeside and La Mesa stations are still located in Lakeside (Carriico 1975).

Foster. The community of Foster, also called Foster's Terminus or Foster's Station, was originally homesteaded by John and Robert Rea and was known as Rea Ranch. Joseph Foster married Martha Swycaffer of Ballena and the newlywed couple settled in the valley in 1880. Joseph Foster operated a farm, producing grain and honey in the 1880's. He was very much involved in transportation and served as County Road Overseer in the Vicente District in the mid-1880's. Through his influence the road from Foster to San Felipe Rancho was approved and begun in 1891. Joseph Foster served as an important and influential member of the San Diego County Board of Supervisors from 1906 until the 1920's, and was instrumental in the opening up of the back country through development of stage lines, roads, and railroads (Davidson 1936:No. 84; San Diego Union 1883-1884, 1891, 1930, 1933; McGrew 1922:433-434).

Foster saw its greatest development as the eastern terminus of the San Diego, Guyamaca, and Eastern Railroad. The railroad was completed through Lakeside in 1889 and to Foster early in 1890. On June 14, 1890, the San Diego Union carried advertisements for a Fourth of

July celebration at Foster, with round trip tickets on the railroad priced at \$1.00. The following year, the railroad terminus at Foster was destroyed by the flood of 1891. The railroad was reopened in 1895, and Foster was a thriving station until the flood of 1916 closed it permanently and Lakeside became the terminal (San Diego Union 1889-1895; Pourade 1964:225).

During the 1890's the Foster and Frary stage line operated between Foster and Ramona, Ballena, Santa Ysabel, Julian, Banner, and Warner's Springs; the Foster and Frary stage is now in the collections of the San Diego Historical Society at Serra Museum. Joseph Foster operated a hotel at the railroad terminus to serve travelers to the San Diego back country. In 1903 Foster built an extension on his hotel to accommodate quarry workers obtaining stone for the San Diego Bay jetty; the Foster quarry began operations in 1893 upstream from the town, at a site now obliterated by the dam and lake (San Diego Union 1893, 1903; Davidson 1936:No. 84; La Force 1975).

Later arrivals in Foster were Clarence and Ralph Foster, no relation to Joseph, who settled in the valley below the town. The Clarence Foster house (Figure 4) on the flat below San Vicente Dam was present in 1916, and may date from around the turn of the century; it is there today, as are the remains of a silo (Figure 5) dating from a later period than the house (La Force 1975).

The San Vicente Dam was completed in 1943, as part of the San Diego municipal water system (Papageorge 1971:21). The lake is open to fishing and recreation on a limited schedule.

Although "half a dozen old fashioned houses and as many more nondescript empty buildings" were said to exist in 1936 (Davidson 1936:No. 84), nothing of the old Foster remains today (Figure 6). The flood of 1916 destroyed the railroad facilities, and the caretaker of San Vicente Dam reports that buildings no longer exist, and that recent efforts with a metal detector failed to turn up any artifacts. One faint reminder exists in the form of a remnant of an old advertisement for a clothing store, painted on the side of a boulder at site W-547, just downstream from Foster (Figure 7). If it dates from the time of Foster, the sign would have been visible from both the road and railroad, proclaiming its message to travelers on their way to Foster.

The San Diego Flume. When San Diego's water requirements began to exceed well supplies in the late 1870's and early 1880's, other sources were developed. The first of these was the San Diego Flume. In 1885 Theodore Van Dyke and W. E. Robinson planned to form the San Diego Irrigating Company, but the plan failed. Enlisting the support of a number of prominent San Diegans including George W. Marston and Milton Santee, Van Dyke and Robinson incorporated the San Diego Flume Company in May of 1886. Despite some difficulties, the flume was completed and dedicated on February 22, 1889 (Figure 8) (Smythe 1908: 445-446; Heilbron 1936:242).

The San Diego Flume extended for 35.6 miles from the junction of Boulder Creek and the San Diego River to a storage reservoir in La Mesa (Smythe 1908:445); the reservoir is now an ornamental lake at

Anthony's Fish Grotto in Grossmont. The flume followed the San Diego River from Boulder Creek to lower El Monte valley, then cut southward through tunnels to Johnstown, from which it followed the south edge of El Cajon Valley to Grossmont (Map 1). The flume was constructed of redwood on a flat route bed dug and blasted out of the hillsides along the route. Trestles were built across side canyons, and tunnels were bored through hills at four points along the route. The water originated in Cuyamaca Lake, where a dam impounded water from the mountain watershed. The water traveled down Boulder Creek to a diversion dam at its junction with the main river, where it entered the flume proper. The survey area parallels approximately five miles of the flume route, including one tunnel. The route of the flume is evident today (Figures 9-11), although the flume structure no longer exists. A portion of the flume route above the river bed below El Capitan Dam was examined on this survey (Figures 12 and 13). Fragments of the redwood flume structure are scattered about, mostly burnt by subsequent brush fires, and drainage ditches crossing the route are in evidence; otherwise, only the flat route bed remains.

The San Diego Flume Company furnished much of San Diego's water from 1889 to 1906, but during this time it was plagued by a drought lasting roughly from 1895 to 1905. In 1910 James A. Murray and Ed Fletcher bought the company, re-named it the Cuyamaca Water Company, and reconstructed the flume. Cuyamaca Dam was raised to increase its capacity, the diversion dam was enlarged, and the flume was lined with a waterproofing composition. The Cuyamaca Water Company took over

distribution of water to Normal Heights, Kensington Park, East San Diego, La Mesa, Lemon Grove, and Spring Valley, and built a dam, now known as Murray Dam, in 1918 to increase storage capacity (McGrew 1922:236; Heilbron 1936:242; Helix Irrigation District 1963:4).

The owners of the flume offered it to the City of San Diego a number of times between 1889 and 1925, but the city in 1906 entered into a contract with the rival Southern California Mountain Water Company for water from the Otay, Morena, and later Barrett dams. Because it followed the side of the hill above the river, the flume was not damaged by the 1916 flood, and provided much of the city's water service when the Otay Dam was destroyed by flood waters. On January 4, 1926, the San Diego Flume was sold to the La Mesa, Lemon Grove, and Spring Valley Irrigation District, later known as the Helix Irrigation District and recently re-named the Helix Water District (McGrew 1922:236; Heilbron 1936:242; Pourade 1965:217). The San Diego Flume was taken out of service in 1936, although portions of the route in El Cajon are still being used for Helix Water District pipelines (Helix Irrigation District 1963:26; Grosse 1975).

The El Capitan Dam was constructed in 1935 to impound water for San Diego's city water system (Papageorge 1971:21). The lake is operated today as a fishing and recreational facility.

Historic activity in the El Monte valley below El Capitan Dam has consisted largely of agriculture, grazing, and dairying. The valley today is occupied by farms and dairies, private residences, and El Monte Park. Much of the valley floor is owned by the Helix Water

District and is planted to grain for hay. No very old structures were noted on the survey, although remains of a silo were recorded at site W-231 (Figure 14), and an old adobe house, now in ruins, was noted at site SDR-12. The adobe (Figure 15) was built in the late 1940's by Wellington Isaac Hoover; the original Hoover home, built in 1933, is nearby, and is occupied by a son, Wellington Aaron Hoover (Hoover 1975). United States Geological Survey Quadrangle maps of the 1940's show a prison camp located on the flat below El Capitan Dam; no remains of this camp were noted on the survey, and residences are in the area today.

ARCHAEOLOGICAL RESOURCES

Despite all the development, quarrying, and freeway building along the San Diego River Valley, valuable archaeological resources remain. Twenty-six previously unrecorded sites were found during the survey. Although a number of the recorded sites have been completely obliterated by the expansion of San Diego and surrounding communities, many others remain, even though in disturbed conditions. Descriptions of the conditions of recorded sites, a discussion of previous archaeological research, an inventory of the unrecorded sites, and a discussion of the rock art of the area will be covered in this section. Site significance will be covered in the following section. See Map 2 for site locations and Appendices I and II for the original descriptions of recorded sites from the Museum of Man and San Diego State University.

Recorded Sites

W-165: This site is located at the intersection of Friars Road and Mission Center Road, with freeway-style on- and off-ramps. The hillsides around appear to have been graded and no area was seen which would be likely to have any site remnants.

W-175: This site was located where Friars Road has been greatly widened and apartments and a gas station have been built. An area of shell and flake scatter exists in a vacant lot southwest of the recorded site location, probably a small remnant of the large site.

W-178: This site was located at the base of the hillside under Friars Road just east of Interstate 805. The surrounding area is covered by trailer parks.

W-200/200A: W-200 was a very large village site which now lies largely under the Carlton Oaks Golf Course and housing developments. Some areas remain with bedrock milling features and some midden. Portions of W-200A had San Dieguito components, with

some remnants among some of the many small businesses on the south side of Mission Gorge Road. Some of the large site area north of the river may actually be preserved under the golf course. Portions of the occupation site on the north side of the river near Mission Dam have been referred to as W-200B and W-200C in notes at the Museum of Man, but were never formally recorded as such. The site near Mission Dam will be described in this report under the number SDR-23.

W-231: This was a large village referred to as El Monte Village. The site is located near the base of and on top of a knoll jutting south into the river valley. Half of the slope of the hill, which formerly had large boulders with milling features and midden, has recently been graded to form a house pad (Figure 16). Some milling and midden remain at the base of the hill, and the top of the knoll still has 7 rock wall structures (Figure 17), milling (Figure 18), and midden. One pictograph was found on a large boulder on the side of the hill below the graded pad (Figures 19 and 20). Mortars, basins, slicks, flakes, sherds, and 1 scraper were observed.

W-242: This site was located at the intersection of Interstate 15 and Interstate 8. A previous survey of this area (Cupples 1974b) revealed that virtually nothing remains of the site. Two artifacts were found completely out of context.

W-244: Scattered site material still remains at this site; the pictograph is undamaged. Motorcycles and other off-road vehicles have torn up the land considerably.

W-291A: This was the historic village of Cosoy, which has been obliterated by Old Town, Interstates 5 and 8, and Taylor Street (Figure 21). Midden soil from this site was used to cover the ruins of the presidio and has added prehistoric sherds and flakes to the historic material being excavated there.

W-331: This site was recently recorded and is outside the survey area, so it was not re-checked during this survey.

W-347: No new information was gained for this site.

W-350: This site is now destroyed by construction of the El Cajon Sears store and parking lots.

W-355: This site is located in the drainage on the east side of Wildcat Canyon Road. The area remains relatively undisturbed. Nineteen slicks, 9 oval basins (Figure 22), and 1 mortar were observed. Ground cover obscured any possible midden or

artifacts. Two very faint pictograph elements were found on a vertical, stream eroded granite wall (Figure 23). The pictographs and slicks had not been previously recorded.

W-356: This site is still primarily intact, although slightly pot-hunted. Midden with a depth of at least 12 inches was observed, along with milling features, manos, pottery, and flakes.

W-383: This site area was not directly field checked since it was outside the primary project area and was occupied by residences. An area approximately 900 feet east was checked in an accessible area, and the material found there is recorded as SDR-20.

W-457: No information was available, but this may be a small milling site recorded as SDR-16.

W-488: This site area still exists.

W-489: No new information was gained for this site.

W-490: No new information was gained for this site.

W-491: This site has not been altered since being recorded within the last year.

W-547: This is a large site located where the old road makes a sharp turn in toward San Vicente Dam (Figures 24 and 25). On the knoll there are 7 slicks and 5 oval basins, pottery, flaked tools, 1 mano/pestle, and 1 mano fragment, with midden and 3 rock wall enclosures. The rock walls were not previously recorded. A faded historic clothing store advertisement is painted on a rock (Figure 7) on the west face of the hill and is visible from the road and probably in the past from the railroad tracks.

W-548: This site was well outside the project area, so it was not checked.

W-567: This site still exists but is disturbed by grazing horses.

W-584: This site is well outside the project area and was not checked.

W-615: This site is well outside the project area and was not checked.

CAL:F:1:19: This site was not relocated by the survey crew.

SD1-4: This site was outside the project area. The record search

refers to the site as "Carter's Old Mission Site." In this case the location shown is probably incorrect, since Carter (1952:447-450) was referring to an area immediately west of Mission San Diego de Alcala, not several miles west.

SD1-35: This is the UCLA site number for the Mission San Diego de Alcala. The main mission buildings remain (Figure 1) and excavations are being conducted by the University of San Diego.

SD1-38: This is probably the UCLA record for the Presidio.

SD1-41: This is probably the UCLA record for the historic Indian village of Cosoy (W-291A).

SD1-120: A very small site composed of milling features (SDR-17) was found near the map location provided by the record search; however, Site A described by McCown (1945) in the San Vicente Lake bed fits the description of SD1-120, especially in the detail of a quartz crystal drill, a rare object. SD1-120 is probably McCown's Site A, mislocated on the map.

SD1-125: This site is probably either under the San Vicente Dam or one of McCown's sites in the lake bed.

SD1-202: This was the location of outbuildings and fields of the mission. The entire area has recently been bulldozed and the construction of apartments has begun. A small area of tile floor was found and preserved in this area (Kaldenberg 1975).

SD1-203: This may be the UCLA record for the occupation site on the hill north of Mission Dam, but no information was available. The occupation site is described under number SDR-22.

SD1-239: This site was outside the project area and was not checked.

CE-63: This is a small late prehistoric milling site south of the project area in the Santee area. Five basins and 2 slicks were observed (Fink 1975).

CE-64: This site is north of the project area in the Santee area, and is a small milling site with scattered midden and a metate fragment (Fink 1975).

CE-65: This site is southeast of the project in the El Cajon area. It is composed of 2 basins and scattered midden (Fink 1975).

CE-66: This site was recorded as a small milling site with no associated artifacts or midden (Fink 1975); however, the

survey crew recorded much more in the same area as SDR-26.

PA-1: A small scatter of artifacts was found on the surface on property which was formerly part of the Maniscalco Cactus Farm. Testing revealed no depth to the site (Cupples 1973).

CAL:E:4:29: A small milling site is located on the south edge of the proposed route of Mast Boulevard, north of the project area. Five mano fragments, 1 flaked fragment of quartzite, 1 pot-sherd, and 11 flakes were collected. Fourteen slicks, 7 basins, and 1 large undefined slick area were counted. The milling features were measured when recorded (Cupples 1974a). This site and CAL:E:4:30 were assigned San Diego State University numbers when the report was written, but the information must have been misplaced since neither site appeared on the record search.

CAL:E:4:30: Thirteen tools, 1 core, and 38 flakes were collected from a San Dieguito site on a knoll a short distance south of CAL:E:4:29. No midden was apparent. The artifacts were recorded and the tools illustrated in the report (Cupples 1974a).

TexSt: The Texas Street site is located on a terrace on the south side of Mission Valley, west of Texas Street, and has received considerable notoriety. Pleistocene age artifacts are reported from the site (Carter 1957). The site was never formally recorded at either the Museum of Man or San Diego State University.

BuCyn: Artifacts similar to those found at the Texas Street site were found in Buchanan Canyon off Mission Valley east of Highway 163 (Moriarty and Minshall 1972). This site has not been formally recorded at the Museum of Man or San Diego State University.

Previous Archaeological Research

Considering the extent of archaeological resources in the San Diego River and San Vicente Creek valleys, very little serious archaeological research has been done there.

In 1945, McCown published a report on a survey he conducted of the area to be flooded by San Vicente Dam. He recorded five sites and excavated what he could of the largest site, W-253 in the Museum of

Man files (Hedges 1975b), before the reservoir was filled. All five sites were from the late prehistoric period, the main site having had bedrock milling features, cremations, and a wide variety of artifacts. It is possible, considering the present low level of the reservoir, that some of the sites may be exposed again and therefore available for further research.

In 1957, Carter published his theory of Pleistocene occupation of the San Diego area. The main basis for his conclusions was the Texas Street site in Mission Valley. The majority of archaeologists in the United States refuted the claim of great age and considered the artifacts to be "naturefacts." However, the possibility of great age for the presence of man in Southern California is now being considered more seriously. Excavations were conducted at the Texas Street and Buchanan Canyon sites during the summer of 1973 by University of San Diego students under the direction of Moriarty in cooperation with Carter and Minshall. The artifacts found at Buchanan Canyon, especially, have been accepted by some archaeologists, although many remain skeptics.

Excavations have been conducted at the San Diego Presidio since 1965 by San Diego State University and Mesa Community College students and volunteers, in cooperation with the San Diego Historical Society. The walls of the chapel built to serve the community at the Presidio have been exposed and show a relatively large structure which recent excavations indicate may have a false front (Ezell 1975). Burials of several important historic figures have been discovered.

Excavations have also been conducted at Mission San Diego de

Alcala by the University of San Diego since 1966. Many buildings and rooms have been uncovered along with historic Spanish and American military artifacts (Moriarty and Weyland 1971; Reck and Moriarty 1972). An environmental impact report project not connected with the University of San Diego has exposed floor tile across the road from the mission, and preserved it under a plastic coating (Kaldenberg 1975).

Various small projects have gone on in the Mission Dam area. Much of the dam itself remains and is protected in a city park. The flume built to carry water to the mission is not visible on the surface today, but test excavations conducted in the spring of 1971 by San Diego State University and Mesa Community College traced a portion of the flume route. Testing of the Indian occupation site on the hill north of the dam was conducted in the spring of 1963 by the Museum of Man at the request of the City of San Diego. Three trenches were excavated: Trench 1 was sterile; Trench 2 had La Jolla Complex material; and Trench 3 had Yuman (late prehistoric) material. Trench 2 was referred to as W-200C, and Trench 3 was referred to as W-200B, but these numbers were never formally recorded (Hedges 1975b). The occupation site is further described in this report as SDR-22.

Many small surveys have been conducted in the San Diego River area for environmental impact reports in recent years by Loughlin (1973), May (1973a, 1973b), Germeshausen (1973), Cupples (1973, 1974a, 1974b), and Fink (1975).

Previously Unrecorded Sites

SDR-1: One large granite boulder with 6 oval basins and 2 slicks is

located above the graded road leading to the base of El Capitan Dam, on the south side of the San Diego River. No artifacts were seen, but the ground surface was obscured by vegetation.

SDR-2: Thirteen round basins and 3 oval basins are located in a group of boulders under the oaks on the north side of the San Diego River. An old mortarless rock wall runs through the site and may be a remnant of historic agricultural activity. Various introduced and ornamental plants were seen in this area. No artifacts were seen, but the ground surface was obscured by vegetation.

SDR-3: Two oval basins and 6 slicks were found in a group of scattered boulders on the north side of the San Diego River, east of the second small drainage west of the dam. No artifacts were seen, but the vegetation was heavy.

SDR-4: Nine oval basins and 1 mortar were found in a group of scattered boulders west of SDR-3. No artifacts were seen, but the vegetation was heavy.

SDR-5: Milling features were found in granite boulders north of SDR-3. No artifacts were observed.

SDR-6: One slick was found but more may be hidden in the brush. No artifacts were seen.

SDR-7: Five slicks were found in a group of boulders. Soil on the flat south of the boulders and oak trees seemed darker than the surrounding soil. No artifacts were seen.

SDR-8: Two basins and 2 slicks were found on rocks in a drainage on the north side of the San Diego River. Two mano fragments and several flakes were observed, but the depth was not tested.

SDR-9: Twelve slicks and 2 oval basins were found in a group of boulders under the oaks near the auto wrecking yard. No artifacts were seen, but the vegetation was very dense.

SDR-10: Seven slicks, 1 basin, and 1 mortar were observed in a group of boulders on the north side of the San Diego River bed. No artifacts were observed.

SDR-11: One thick stone drill and 1 flake were found on the surface and a number of questionable artifacts were collected from postholes near a pump house in the river bed. This may be a deeply buried site revealed by the excavation for the pump house, or it may be a group of objects deposited out of context by the river during floods.

SDR-12: A very large milling and habitation site is located on the north side of the San Diego River bed, across from El Monte County Park. A complete count of milling features in this very large site was not within the scope of this survey; mapping of the site should be done before an inventory of milling features is undertaken. Slicks, basins, and mortars (Figures 26 and 27) were observed (1 slick is located 500 feet south, across the river bed in the east corner of El Monte Park). Many rockshelters were observed which show signs of occupation; one had a rock ring arrangement (Figure 28) extending from the base of the boulder, perhaps the base of a brush shelter. One pitted boulder was recorded (Figure 29). Sherds, flakes, 1 portable metate, and other metate fragments were seen. The depth of the site is untested, but midden was apparent over much of the site.

SDR-13: Three manos, 1 mano fragment, 1 portable metate fragment, 1 scraper, and dark soil were observed on the flat on the north side of the river between SDR-12 and W-231.

SDR-14: Six slicks and sherds were found at the base of the hills and on a knoll to the east, approximately 1,000 feet west of W-231. Midden was apparent but was not tested.

SDR-15: Two pictograph design elements were found on a large, isolated boulder (Figure 30) near the base of the southwest side of a hill approximately 600 feet west of SDR-14. No midden or artifacts were associated with the photographs.

SDR-16: Two slicks were found on a boulder on the hillside on the north side of the San Diego River Valley. No artifacts were seen. This may be site W-457, or part of it, for which there was no information available. An area just east of the slicks appeared to be a favorable location for an occupation site, but it was not accessible.

SDR-17: Two slicks were found in a disturbed area west of San Vicente Dam. This may be SDI-120, which was shown in this location on the record search map, but which is recorded as an occupation site producing, among other artifacts, a quartz crystal drill. The description fits that of McCown's Site A in the San Vicente Lake bed (McCown 1945); perhaps the UCLA site number was mislocated in the record search or on the UCLA site maps.

SIR-18: Six slicks were found on one large rock west of San Vicente Dam on the south side of the creek. No artifacts were seen.

SDR-19: One mortar and slicks were found in large rocks just southeast of SDR-18. One mano/pestle was seen.

SDR-20: Slicks and oval basins were found in a group of large boulders with midden on the north side of El Nopal Road, in a vacant lot east of a residence (Figure 31). Mano fragments and flaked stone were observed. The area inspected has been bulldozed up to the base of the group of boulders. The site area extends into the yard of the residence to the west and may even continue all the way to W-383.

SDR-21: Ten slicks, 7 oval basins, and 2 shallow mortars were found at the base of the south end of a large "island" in the San Diego River Valley. Most of the midden area has been cut away for a graded dirt road, but the road cut shows the depth of midden to be between 3 and 4 feet (Figure 32). Whole and broken manos, a metate fragment, and flakes were seen.

SDR-22: This is the large occupation site on the hill north of Mission Dam. The site was divided into areas a, b, c, and d, with milling at areas b, c, and d, but not at area a. Many oval basins, slicks, and a few mortars were observed. Midden areas have been pothunted in the past, but the site probably still holds valuable information. Test trenches were excavated at the site in 1963 by the Museum of Man, and La Jolla and late prehistoric materials were found (Hedges 1975b).

SDR-23: Three oval basins and 2 slicks were found in boulders beside the river channel near the gaging station in Mission Gorge. No artifacts were seen, but the vegetation was dense.

SDR-24: Four slicks were found on a low ridge east of El Capitan High School. One quartz projectile point and 1 flake were seen.

SDR-25: Milling features and San Dieguito tools--1 scraper, flakes, hammerstones, and cores--were found on a hill on the south side of Mission Gorge Boulevard opposite a trailer park. The area is impacted by houses and horse corrals and no midden is discernible.

SDR-26: A milling site was found on a hill west of the intersection of Woodside Avenue and Shadow Hill Road. One flake, 1 scraper, mano fragments, 2 oval basins, 9 slicks, and midden were observed. A site (CE-66) was recorded in this location, but was not supposed to have midden and artifacts.

Rock Art

The San Diego River survey resulted in the discovery of three previously unrecorded pictograph (rock painting) sites, all of them on

the north side of the river between Lakeside and El Capitan Dam. Two of the pictograph panels occur at previously recorded sites, but the paintings had not been previously recognized.

The first site noted on the survey, site SDR-15, is located on the face of an isolated granite boulder (Figure 30), approximately 1,600 feet west of the village recorded by the San Diego Museum of Man under the number W-231. The design, in red pigment, is badly weathered. Surviving design elements include an area of crosshatching and an apparent rectangular design which may be a remnant of another crosshatch pattern. There is no additional site evidence in direct association, but a site was located approximately 600 feet upstream from the paintings. The design elements at this site indicate a stylistic relationship with rock paintings found in northern San Diego County and Riverside County. The style was most developed among the Luiseño Indians, but a few isolated sites have been recorded as far south as El Cajon. It is hypothesized that this style entered Diegueño territories along with religious ideas brought south by the Luiseño in early historic times (Hedges 1973b:7-9). The precise picture of the distribution of this style in Diegueño (including Northern Diegueño and Kumeyaay) territories is unclear at the present time, and this site provides a significant piece of new data for the study of rock art in this area.

The second pictograph encountered on the survey is located on the face of a granite boulder (Figures 19 and 20) within the W-231 site area. This painting consists of a single design element: a precise meandering line, painted in red, resembling a large stylized letter W.

In traits such as care of execution and control of line width, this painting resembles pictographs in the highly developed style of the Rancho Bernardo area of northern San Diego (Hedges 1973b:9-11), but there is not enough information in terms of design elements to allow any detailed comparisons with other areas.

The third pictograph site found on the survey is located at the site in Wildcat Canyon previously recorded by the Museum of Man as W-355. This painting, on the face of a granite cliff above a small stream (Figure 23), consists of a circular element which is still clear enough to be made out, and an area of possible crosshatching or diamond-shaped elements which is virtually illegible due to fading. The color is orange. As with the previous site, there is little left here which allows for comparisons with other sites.

A fourth pictograph, recorded by the Museum of Man as site W-244, is known to occur in the vicinity of the project, but just outside the boundary of the study area. This site, in the Cowles Mountain area, consists of a bordered set of design elements, some of them indicating that the site is of historic date, painted in red on the side of a white granite boulder. This site bears no obvious relationship to other prehistoric or historic rock art styles in the area.

The pictograph sites recorded on this survey, in spite of their small sizes and lack of design elements, are extremely important in distributional studies of rock art in southern California. Prior to this survey, only two pictograph sites (the Cowles Mountain site and the El Cajon site previously mentioned) were recorded for the southern

part of the county west of the interior mountains. The addition of three new sites demonstrates that rock art sites do exist in the area, and the remaining design elements lead to the preliminary suggestion that these sites resulted from religious ideas and cultural influences coming into the area from the north.

During the course of the survey, one other feature was recorded of a type which is usually discussed under the heading of rock art. The pitted boulder (Figure 29) at site SDR-12 is an example of a type of rock art that is widely distributed, and there is some evidence that this type of petroglyph was produced by Luiseno boys during their puberty ceremonies. There are no ethnographic data which allow us to accurately determine the function of these sites in Kumeyaay culture (Hedges 1973b:21).

DISCUSSION

Mission Valley is the area with the least archaeological material remaining. Virtually all the large La Jollan shell middens along the bases of the hills have been destroyed. The large historic Indian village of Cosoy has been destroyed by the development of the city of San Diego (Figure 21). Remnants of the large village of Nipaguay on which the mission was built can be found around and below the mission buildings. Even most of the historic places have been wiped out by the rush to fill the valley with stores and parking lots. All that remains are Old Town, the Presidio, the Mission (Figure 1), and the debated Texas Street and Buchanan Canyon sites.

Approximately half the length of Mission Gorge has been completely altered by quarrying. The eastern half, however, is not as disturbed, and Mission Dam and the prehistoric site near it have been altered only by vandals. The dam already is a national landmark and is protected within a city park (Figure 2). The prehistoric site also is within the park. Valuable interpretive projects could be developed around the dam and flume and the Indian occupation. This idea was suggested to the city by the Museum of Man in both 1963 and 1971 (Hedges 1975b). Nothing has been done to date, and the area is deteriorating due to vandals and motorcyclists.

The single most valuable site in the project area is SDR-12 (Figures 26 through 29), across the San Diego River from El Monte County Park. SDR-12 is a very large village site, in an almost pris-

tine condition. Grazing animals have disturbed the surface slightly, and obvious artifacts have been collected by the surrounding residents, but the site does not appear to have been pothunted. No large, late prehistoric villages in the San Diego area have been scientifically excavated, and the fact that so few of them remain intact multiplies the research value of this site. The site is very close to the course of the river, and could be impacted by almost any water control project considered in the future.

Another site which would probably receive immediate impact from water control projects is SDR-21 (Figure 32). SDR-21 is a very small remnant of a larger site, but it has exceptional value because of the depth of the midden deposit. Between 3 and 4 feet of midden are exposed in the cut for the dirt road which has destroyed the remainder of the site. Such midden depths are seldom encountered in late prehistoric sites of the San Diego area, and excavation could provide valuable information on the cultural time sequence.

The remnants of sites W-200 and W-200A retain some research potential also. Any projects in that area would require testing of the affected site areas.

SDR sites 1 through 10 do not individually have a great deal of research potential, but when considered together, they form an interesting series of milling sites strung out alongside the river. Testing of these sites might reveal midden under the vegetation and layers of oak leaves. They may also prove valuable for research on the character of milling sites in the area. These sites would very likely be im-

pacted by any water control project.

W-231, even though half destroyed, remains a very important site (Figures 16 through 20). The rock wall rooms and the pictograph are very significant features since both have been frequently overlooked or unnoticed by many archaeologists. This site should be studied and preserved, but it is unlikely to be affected by projects in the river bed. This is true of SDR-14 and SDR-15 also. SDR-15 (Figure 30) is especially significant in connection with the pictograph at W-231. The discovery of two new pictograph sites less than a half mile apart in an area where none were thought to exist is very important.

W-547 (Figures 24 and 25) is similar to W-231 in the occurrence of rock walls, and because it is up out of the valley. It also should be studied and preserved, but will not be directly affected by projects in the valley below.

All the other recorded and newly found sites are significant in themselves, if only because they still exist, and many have valuable research potential. However, most of them would not likely be affected by future water control projects, although locations and evaluations should be rechecked when plans are developed.

From Mission Dam east, the San Diego River and its tributaries provide a rich area for research into late prehistoric settlement patterns, especially in the El Monte area west of El Capitan Dam. Remnants of older site material could offer valuable insights into the culture sequence and development in the San Diego area.

Historic features in the eastern part of the project which should

be considered for preservation and interpretation are the old San Diego Flume route (Figures 9 through 13) which runs on the hillside above the project area in the vicinity of El Monte, and the Clarence Foster farm house (Figure 4) near San Vicente Dam. The flume route could be made into a very interesting hiking trail from the El Cajon and Lakeside areas all the way to Boulder Creek and Cuyamaca Lake, providing environmental variations with the elevation changes, and much lovely scenery. One obvious problem exists, however, since the tunnels have been closed for safety reasons and it would be necessary to construct detour trails to bypass the tunnels.

An interpretive sign, at least, describing its history could be placed at the entrance to El Capitan Dam. The Clarence Foster house is still occupied and could not easily be made a public site, but its age and history should be considered if any projects in the area threaten its existence. The site of the town of Foster at the base of San Vicente Dam (Figure 6) could also be described on a sign for the benefit of those who use the area for recreation. Many old buildings exist in the Santee and Lakeside areas, and a specific study of historic buildings might be done in these areas before any project plans are made.

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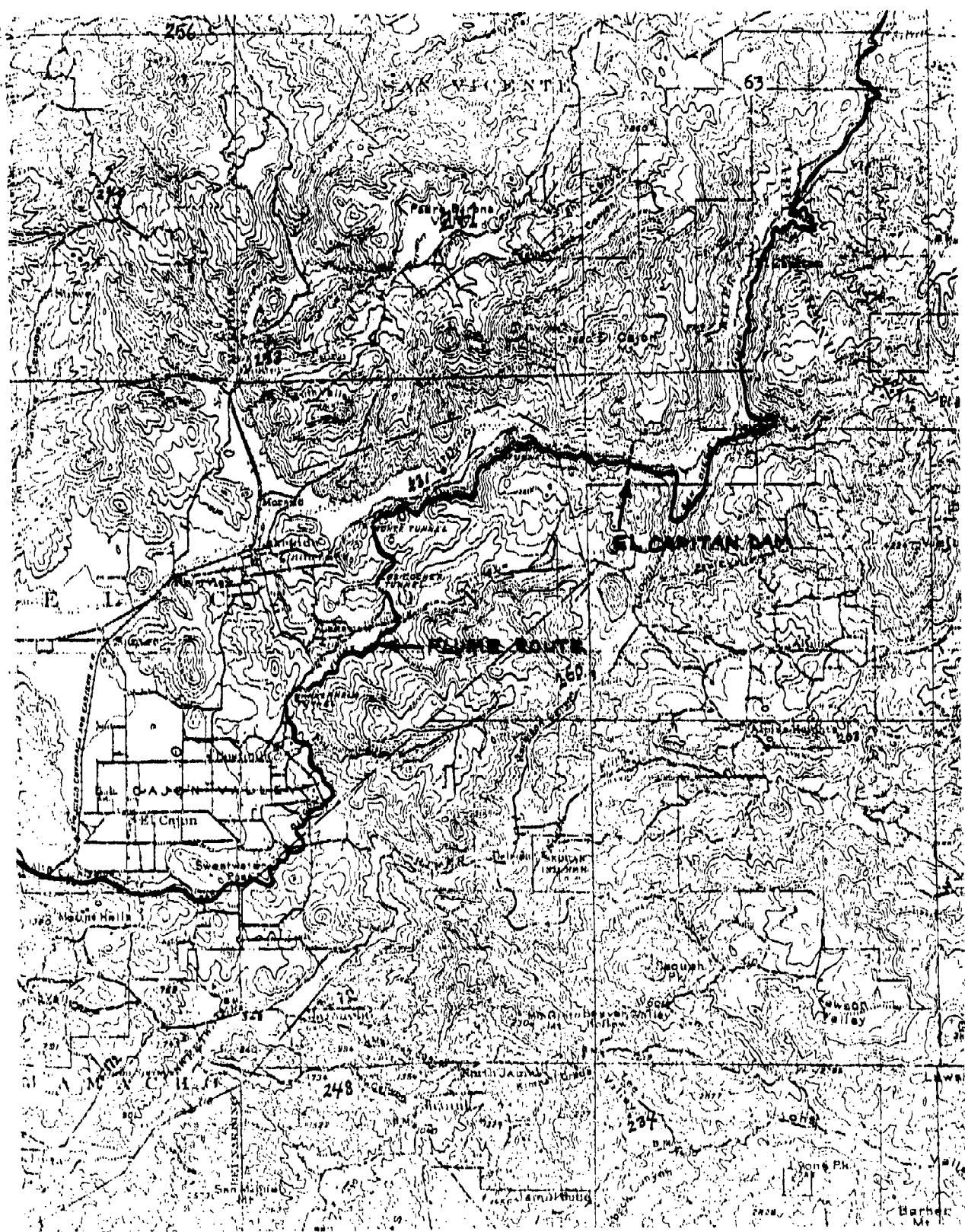
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1910 The Religious Practices of the Diegueno Indians. University of California Publications in American Archaeology and Ethnology, Vol. 8, No. 6.

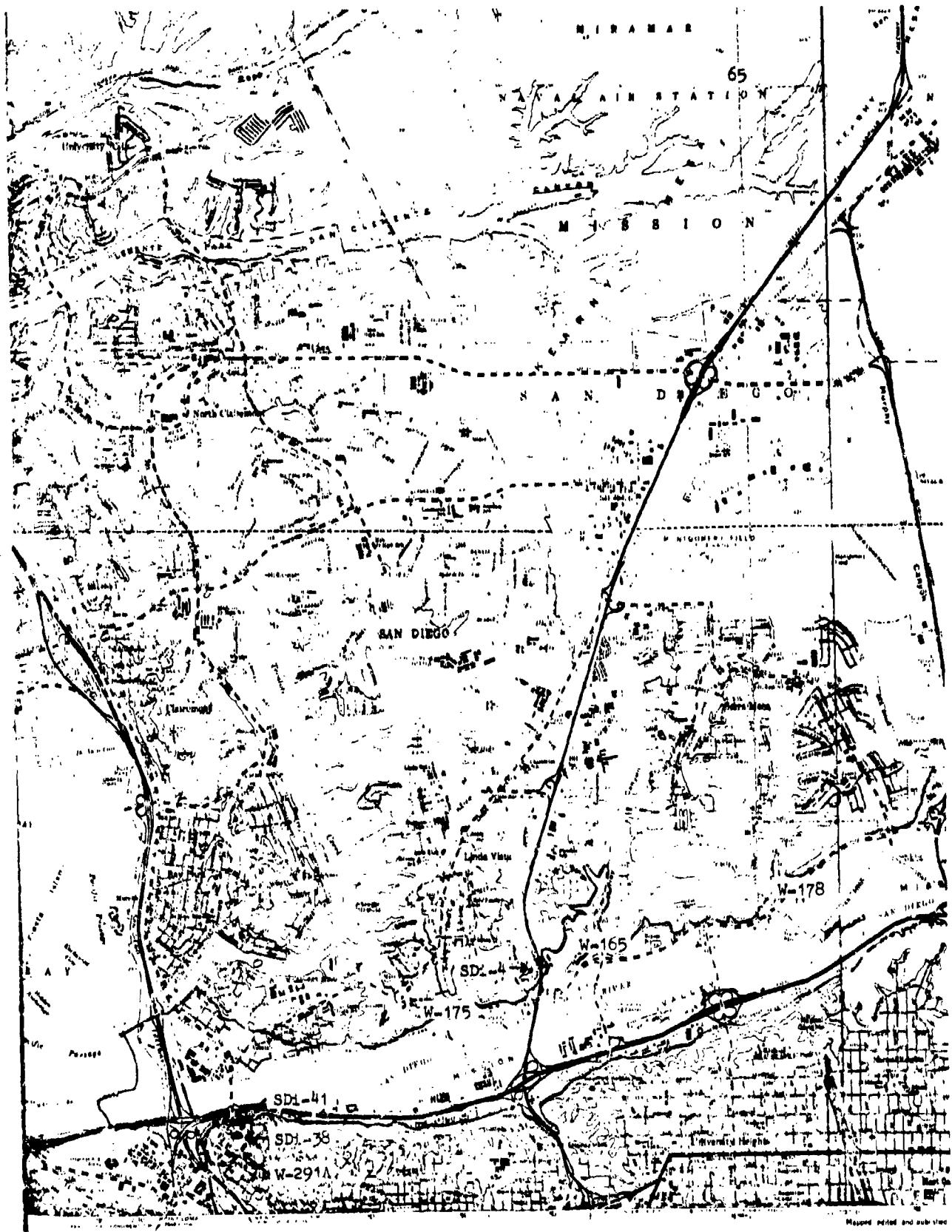
Willey, Gordon R.

1966 An Introduction to American Archaeology, Volume One: North and Middle America. Englewood: Prentice-Hall, Inc.

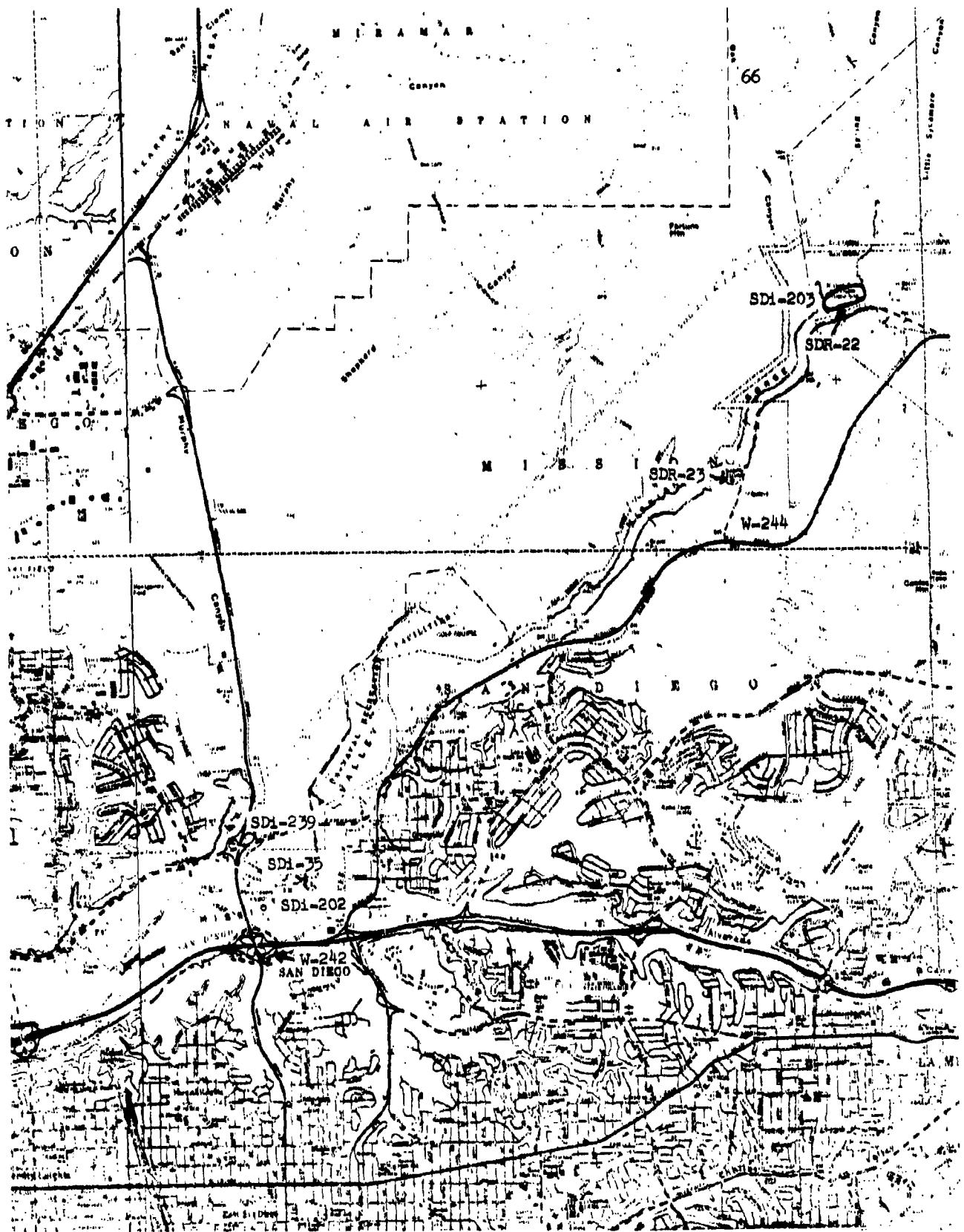
MAP 1

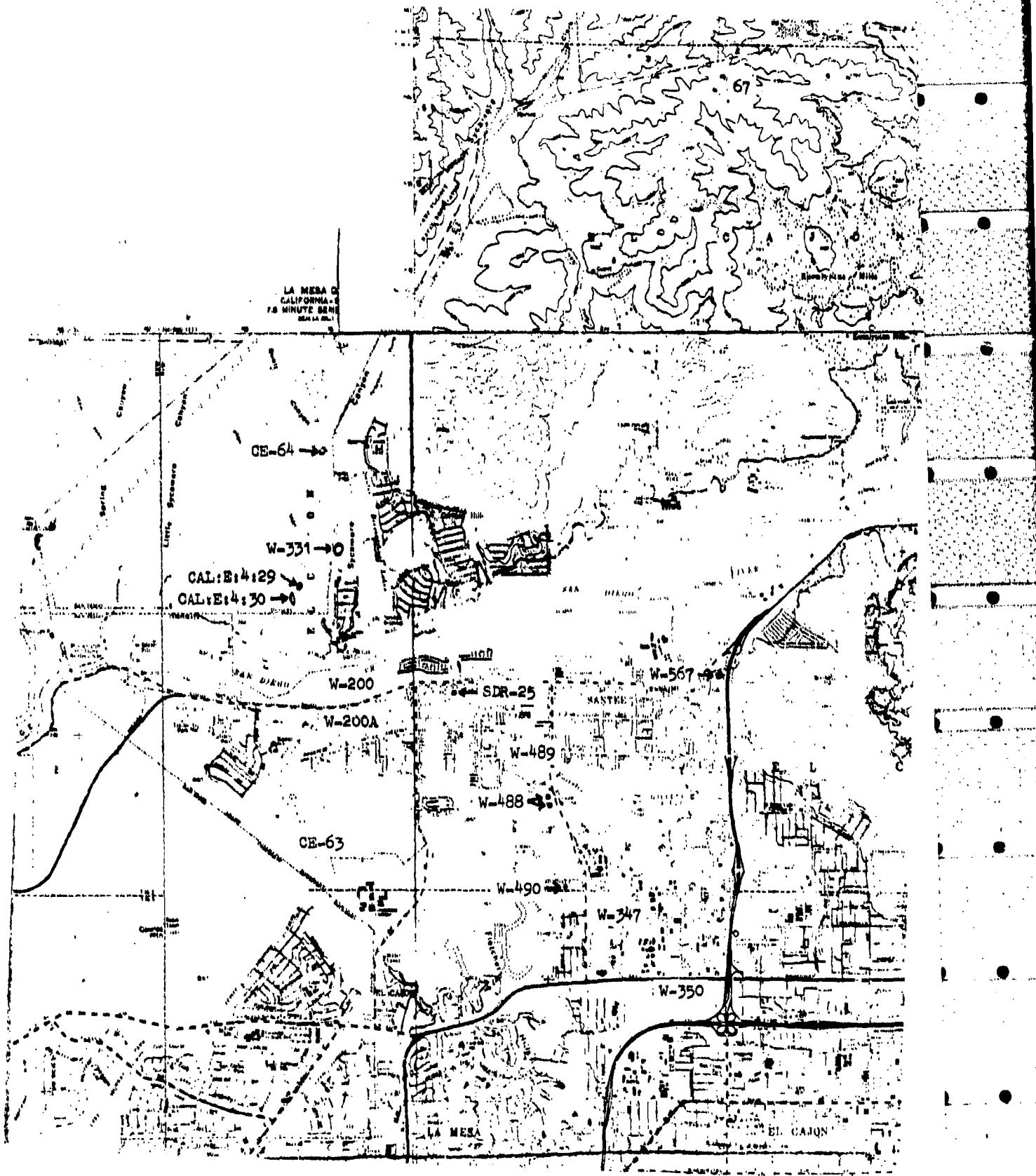


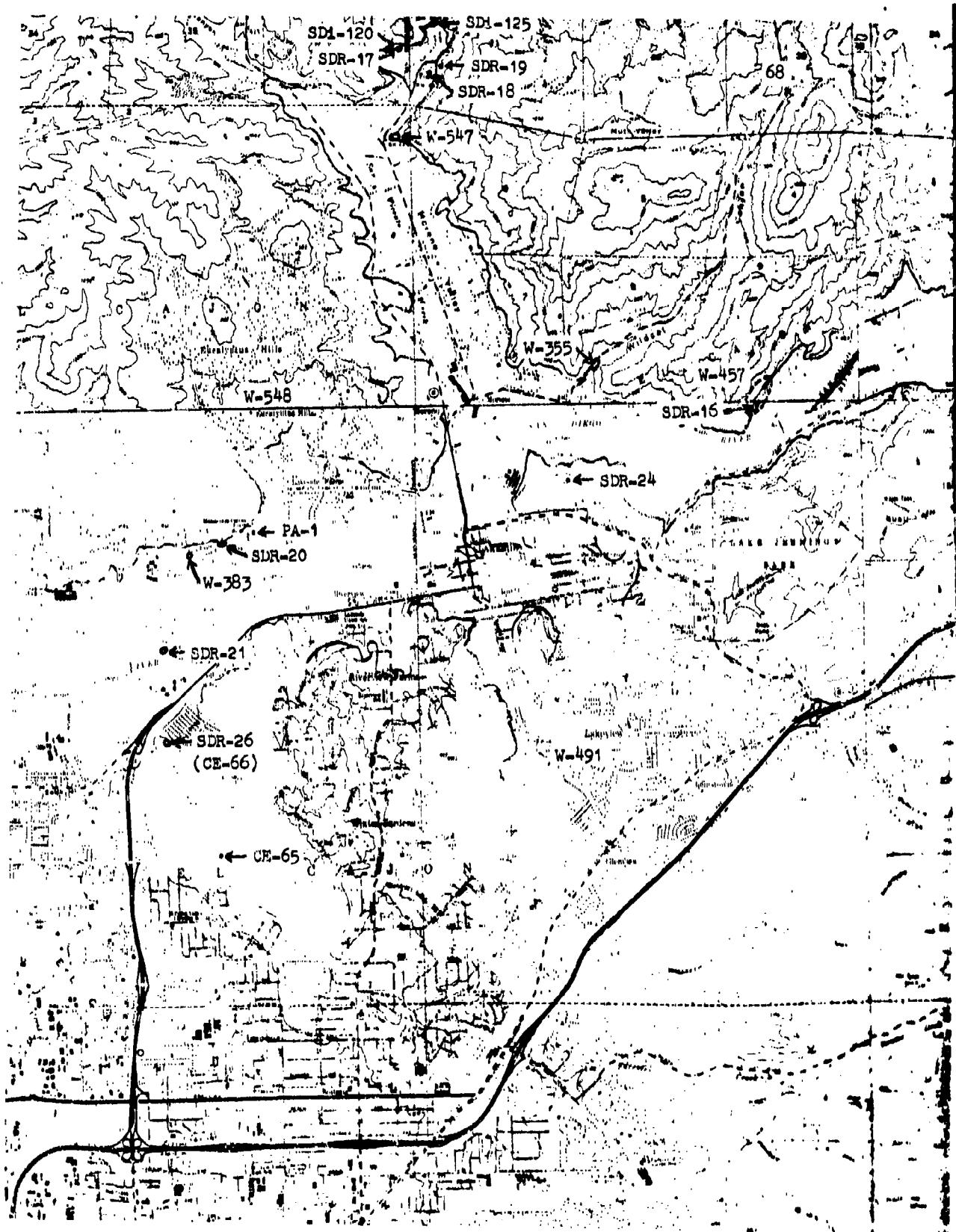
MAP 2

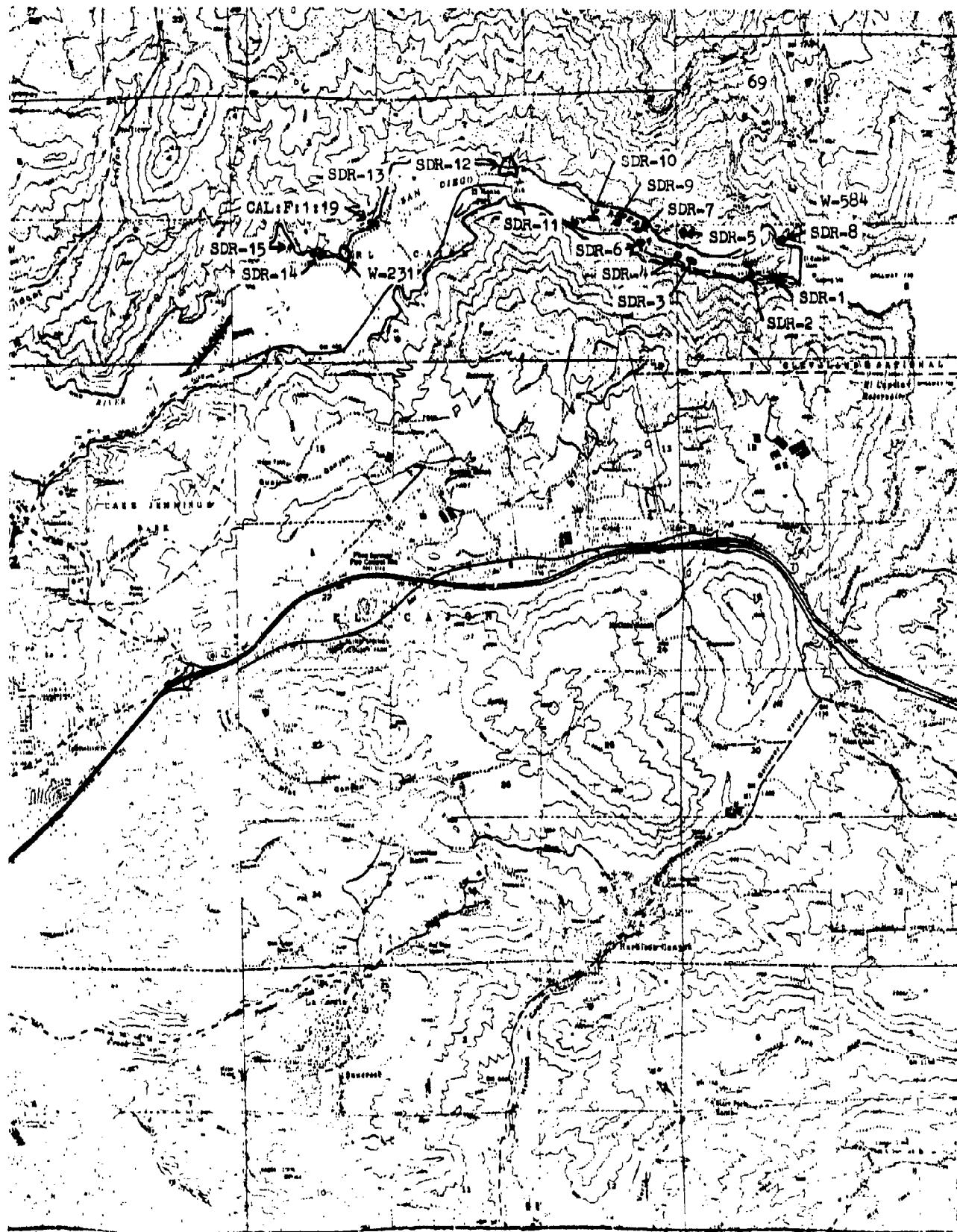


Maped, edited and subbed









FIGURES



Figure 1. Mission San Diego de Alcala.



Figure 2. Mission Dam.



Figure 3. Site of Maniscalco Cactus Gardens.



Figure 4. Clarence Foster House Below San Vicente Dam.



Figure 5. Silo Below San Vicente Dam.



Figure 6. View Upstream Toward the Site of Foster.



Figure 7. Early Clothing Store Advertisement at Site W-547.

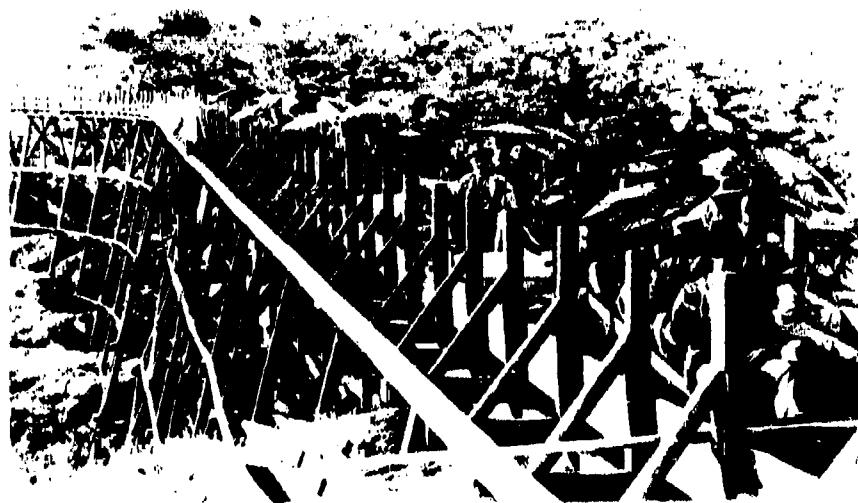


Figure 8. Dedication of the San Diego Flume, 1889.
(Photograph Courtesy of Helix Water District.)



Figure 9. San Diego River Valley Below El Monte; the Flume Route Parallels the Valley on the Distant Hillside.

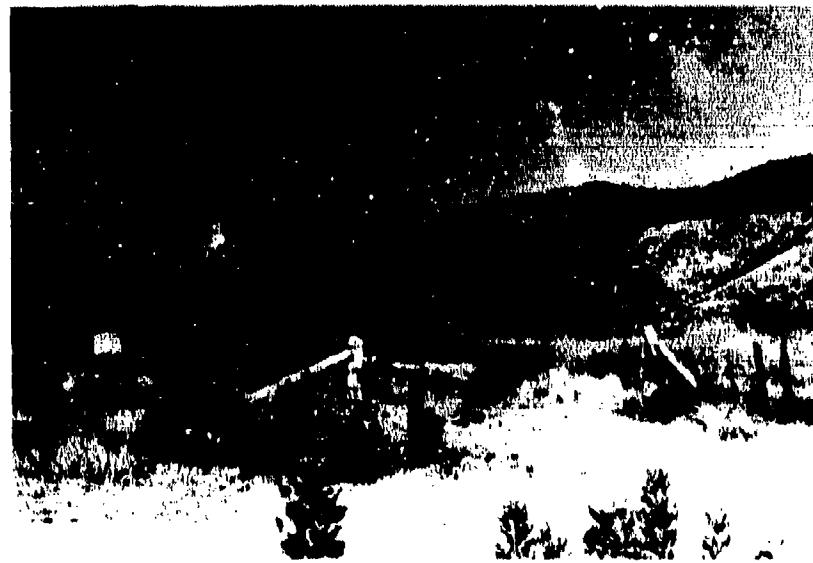


Figure 10. Lower El Monte Valley, Showing Flume Route on Hillside.

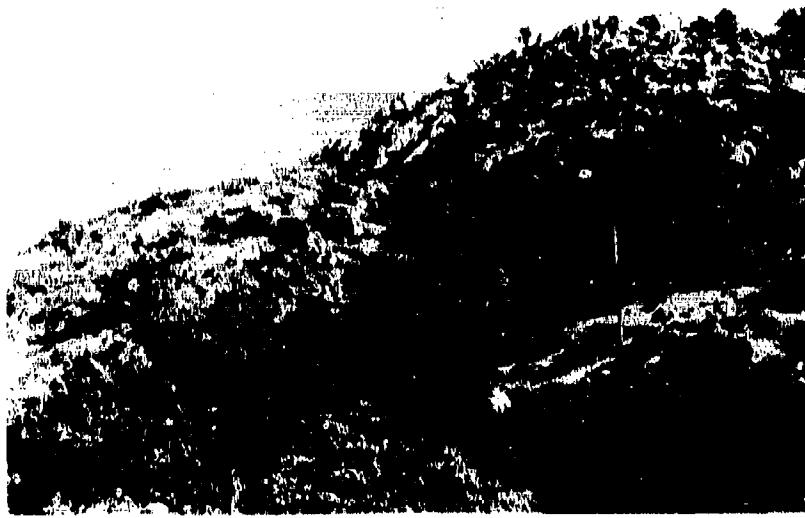


Figure 11. View of Flume Route, Showing Rock Retaining Wall.



Figure 12. View Eastward Along Flume Route.



Figure 13. View Westward Along Flume Route.



Figure 14. Remains of Silo at Site W-231.



Figure 15. The Hoover Adobe at Site SDR-12.



Figure 16. Site W-231 from the West, Showing Graded Area.



Figure 17. Rock Wall Structure at Site W-231.



Figure 18. Bedrock Milling at Site W-231.



Figure 19. Location of Pictograph at Site W-231.



Figure 20. Painted Rock Face at Site W-231.



Figure 21. Former Site of Cosoy: Taylor Street in Old Town.



Figure 22. Grinding Basins at Site W-355.



Figure 23. Location of Pictographs at Site W-355.



Figure 24. View of Site W-547 from the South.



Figure 25. View of Site W-547 from the Northwest.



Figure 26. Bedrock Milling at Site SDR-12.

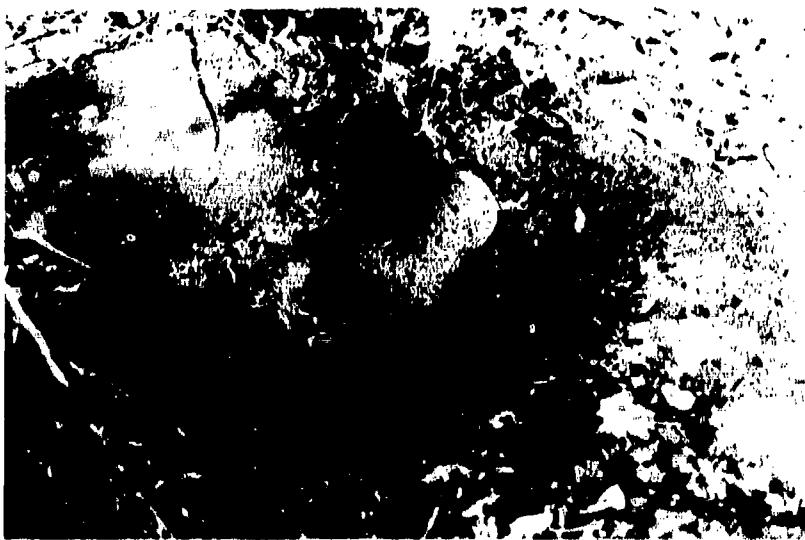


Figure 27. Bedrock Mortar with Pestle in Place at Site SDR-12.



Figure 28. Rock Ring Arrangement at Site SDR-12.



Figure 29. Pitted Boulder at Site SDR-12.



Figure 30. Location of Pictograph at Site SDR-15.



Figure 31. Site SDR-20.



Figure 32. Site SDR-21.

APPENDIX I

SAN DIEGO MUSEUM OF MAN

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1350 El Prado, Balboa Park, San Diego, California 92101, Telephone (714) 239-2001

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REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: San Diego State University Foundation - Sue Ann CupplesDate of Request: 21 May 1975 Letter Telephone In PersonDate Request Received: 21 May 1975 Map Received Map ReturnedName of Project: Mission Valley Project - Army Corps of Engineers Acct. 266090-999

() The Museum of Man files show no recorded sites for the project area.

(x) The Museum of Man files show the following sites within in the vicinity of the project area.

Site No. W-165 Culture(s): La Jolla II, Yuman III

Description: River terrace permanent camp; low shell contents; metates, sherds, projectile points, awls, beads, obsidian, steatite; hearth stones.

Site No. W-175 Culture(s): San Dieguito II & III, La Jolla II, Yuman III

Description: River terrace camp; cobble hearths; medium shell content; intrusive Channel Island steatite tube reported.

Site No. W-178 Culture(s): La Jolla II, Yuman III

Description: River terrace camp; low shell content; flaked stone artifacts.

Site No. W-200/200A Culture(s): San Dieguito, La Jolla II, Yuman III

Description: Permanent village with rock shelters; cobble hearths, bedrock mortars and metates; full range of artifacts; large site, occupied into 19th century.

Site No. W-231 Culture(s): Yuman III, trace of San Dieguito II

Description: River valley permanent village; boulder walled rooms; bedrock mortars; known to be a major site, but never scientifically examined.

Site No. W-242 Culture(s): Unknown

Description: No data on file.

Please note: The project area may contain archaeological resources in addition to those noted above. This report is made from San Diego Museum of Man files only and may not include data pertaining to localities other than those covered in previous Museum of Man surveys or gathered by other institutions or by individuals.

Record check by: Grace Johnson/Ken HedgesDate: 23 May 1975Signed: J. C. English

SAN DIEGO MUSEUM OF MAN

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REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: San Diego State University Foundation - Sue Ann Cupples

Name of Project: Mission Valley Project - Army Corps of Engineers Acct. 266090-999

Site No. W-244 Culture(s): San Dieguito II, Yuman III

Description: Camp sites near spring; few bedrock grinding spaces; sparse sherds, projectile points, etc.; pictograph site.

Site No. W-291A Culture(s): Yuman III; La Jolla I & II in adjacent area to southwest

Description: Estuary shell midden village site; historic village of Cosoy; burials reported; much destroyed by road construction and historic occupation of Old Town.

Site No. W-331 Culture(s): Yuman

Description: Camp; flaked stone.

Site No. W-347 Culture(s): Yuman III

Description: Habitation sites; bedrock mortars and metates.

Site No. W-350 Culture(s): Yuman III

Description: Habitation sites; bedrock metates; portable grinding slab noted. Site now occupied by the El Cajon Sears store and parking areas.

Site No. W-355 Culture(s): Yuman III

Description: Grinding station; bedrock metates adjacent to creek.

Site No. W-356 Culture(s): Yuman III

Description: Grinding station; bedrock mortars and metates.

Site No. W-383 Culture(s): Milling Archaic

Description: Cache of 4 milling slabs and 8 basin metates buried 2-3 feet beneath the surface; small sucking tube on surface nearby.

Site No. W-457 Culture(s): Unknown (Probably Yuman III)

Description: No data on file.

SAN DIEGO MUSEUM OF MAN

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REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: San Diego State University Foundation - Sue Ann Cupples

Name of Project: Mission Valley Project - Army Corps of Engineers Acct. 266090-949

Site No. W-488 Culture(s): Yuman III

Description: Grinding station and possible habitation site; bedrock slicks and basins, manos, flakes; midden present.

Site No. W-489 Culture(s): Not noted (probably Yuman III)

Description: Grinding station with bedrock basins and slicks; one mano.

Site No. W-490 Culture(s): Not noted (probably Yuman III)

Description: Small grinding station; 2 bedrock slicks.

Site No. W-491 Culture(s): Yuman III

Description: Grinding station and habitation site; bedrock basins, slicks, and mortar; mano fragments.

Site No. W-547 Culture(s): Yuman III

Description: Large midden site with numerous bedrock grinding slicks; pottery, chipping waste, flaked stone tools, shaped mano.

Site No. W-548 Culture(s): Yuman III

Description: Midden site rich in artifactual materials; bedrock mortar and slicks; pottery, chipping waste, several manos, knife blade, projectile point, stone tools.

Site No. W-567 Culture(s): Yuman III

Description: Food processing station; three bedrock basins.

Site No. W-584 Culture(s): Yuman III

Description: Small grinding station; four bedrock basins and slicks; three flakes.

Site No. W-615 Culture(s): Not noted

Description: Surface artifacts; several manos, one chopper.

APPENDIX II

SAN DIEGO STATE UNIVERSITY

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Department of Anthropology 5402 College Avenue/ San Diego, California 92182

REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCHSource of Request: Army Corps of Engineers (Sue Ann Cupples)Date of Request: May 20, 1975 Letter Telephone In PersonDate Request Received: May 21, 1975 Map Received Map ReturnedName of Project: San Diego River Project

() The San Diego State University files show no recorded sites for the project area.

 The San Diego State University files show the following sites within in the vicinity of the project area.Site No. CAL:F:1:19 Culture(s):Description: Milling featuresSite No. SD1-4 Culture(s):Description: Carter's Old Mission SiteSite No. SD1-35 Culture(s):Description: The main mission buildings at San Diego MissionSite No. SD1-38 Culture(s):Description: Nelson's Old Spanish FortSite No. SD1-41 Culture(s):Description: Old Rancheria village siteSite No. SD1-120 Culture(s):Description: Occupation site, pottery sherd, quartz crystal
drill

NOTE: This report includes only that information available from the San Diego State University files and may not include data on file at other institutions. A lack of sites recorded in our files cannot be taken as assurance of the absence of archaeological materials. If it should occur that any cultural remains are encountered during the course of construction, a qualified archaeologist should be notified.

Record check by: Larry L. HeadDate: May 22, 1975Signed: Larry L. Head

SAN DIEGO STATE UNIVERSITY

93

Department of Anthropology 5402 College Avenue/ San Diego, California 92182

REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: Army Corps of Engineers (Sue Ann Cupples)

Date of Request: _____ Letter Telephone In PersonDate Request Received: _____ Map Received Map Returned

Name of Project: _____

() The San Diego State University files show no recorded sites for the project area.

() The San Diego State University files show the following sites () within () in the vicinity of the project area.

Site No. SD1-125 Culture(s): _____

Description: Reported site by Treganza

Site No. SD1-202 Culture(s): _____

Description: Southern part of Mission San Diego

Site No. SD1-203 Culture(s): _____

Description: Reported site by Treganza

Site No. SD1-239 Culture(s): _____

Description: Concentration of artifacts including shards of pottery, obsidian and chert flakes, shell

Site No. _____ Culture(s): _____

Description: _____

Site No. _____ Culture(s): _____

Description: _____

NOTE: This report includes only that information available from the San Diego State University files and may not include data on file at other institutions. A lack of sites recorded in our files cannot be taken as assurance of the absence of archaeological materials. If it should occur that any cultural remains are encountered during the course of construction, a qualified archaeologist should be notified.

Record check by: Lorraine C. Fletcher

Date: May 22, 1975

Signed: Larry L. Heath

APPENDIX III

GLOSSARY

artifact: an object made or altered by man.

b. p.: before the present, indicating years ago rather than years before Christ (B. C.).

basin: a depression ground into bedrock, shallower and more more flaring than a mortar, ranging from round to oval in outline.

ca.: circa: around, approximately.

core: the central 'core' of a rock from which a series of flakes have been taken. The flakes from a core would be used to form tools.

flake: as used by archaeologists--a piece broken from a rock (core) which shows characteristics of having been broken by human force rather than natural force.

flume: an inclined channel for conveying water, usually from a distance.

inhumation: burial of the body of the dead under ground, as opposed to cremation and collection of the ashes of the dead for burial.

mano: the hand stone used in grinding on a metate, as corn is still ground in some places in the Southwest and Mexico.

metate: the base stone on which grain (seeds, nuts, etc.) is ground with the mano.

midden: the dark, rich soil which develops where a population lives for a long time, composed largely of ash from cooking fires and organic material from food scraps.

milling: a general term referring to the grinding of grains, in the same sense as European-style flour mills. Milling features refers to slicks, basins, and mortars in bedrock.

mortar: a deep hole ground and pounded into rock by using a pestle to crush seeds, nuts, and other material. Usually deeper than wide, but at least steep-sided. There are both portable mortars, which resemble stone bowls, and mortars

in bedrock.

patination: a weathering process by which the outer layers of a rock will gradually become much lighter than the interior.

pestle: a long, generally cylindrical rock used with a mortar to crush seeds, nuts, and other material.

projectile point: flaked stone arrow or spear points. The term is used to avoid the problem of distinguishing what size is a spear point and what size is an arrow point.

sherd: (potsherd) a fragment of a pottery vessel.

slick: a flat, polished area on bedrock caused by grinding.

APPENDIX IV

INDIVIDUALS CONSULTED FOR THE PREPARATION OF THIS REPORT

Carlson, Mrs. Lars

Consulted on the history of the San Diego River area.

Cross, Jim

Provided information on site W-231.

Grosse, A. W., Helix Water District

Provided information on the history of the San Diego Flume.

Hedges, Ken

Consulted for ethnobiology, rock art, and history.

Hoover, Wellington A.

Provided information on the El Monte area.

Kaldenberg, Russell

Provided information on the preservation of floor tiles
near the mission.

La Force, J. Clayburn and Beatrice

Provided information on the history of the San Diego River area.

APPENDIX V

**THE SAN DIEGO
HISTORICAL SOCIETY**

Serra Museum and Library
P. O. Box 10571, San Diego, California 92110
Telephone 714-297-3258

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Published quarterly from Presidio Hill, the birthplace of California

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THE JOURNAL OF SAN DIEGO HISTORY

SPRING 1971

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James E. Moss, Executive Director
Linda Freischlag, Editor
Joy Wilkes, Editorial Assistant

Cover:

The Padre Dam, a marvel of the mission era, played an important role in San Diego's Mission Valley development. Mrs. Papageorge's article "The Role of the San Diego River in the Development of Mission Valley" on page 14 discusses the Dam and other factors which contributed to the growth of Mission Valley.
Cover photograph by Phil Binks

All photographs are courtesy of the Historical Collection, Title Insurance and Trust Company, San Diego, California unless otherwise noted.

THE ROLE OF THE SAN DIEGO RIVER IN THE DEVELOPMENT OF MISSION VALLEY

Nan Taylor Papageorge

"Is today the day Daddy? Can we pack a picnic lunch and sit on the bluff and watch the buildings go floating out to sea?" Any rainy day might bring forth that half-joking, half-hopeful question from one of our young sons. Their father, who had spent some of his childhood in San Diego, had told them what he remembered of the floods of the San Diego River in Mission Valley. And to their rather horrified delight, he had almost promised them that it would happen again someday. Since the San Diego River was almost completely invisible to them, and the great motels, office buildings and shopping centers were increasing in size and number most visibly, they were caught up in and delighted by what seemed to be a happening worthy of Walt Disney's "plausible impossible."

And so a shared family joke delights us still. But is there still a possibility of flooding in Mission Valley? Surely not! The great surge of building continues. The scarcity of water, not a surfeit of it, seems to be Southern California's problem. The actual presence of a San Diego River astounds the relative newcomer who is apt to state, "I didn't know there was one!"

A glance at the latest San Diego City map will reveal a bright blue stream flowing through the heart of Mission Valley.¹ But a drive from Mission Bay six miles up to the head of Mission Valley where it narrows in-

Nan Taylor Papageorge, a native of Virginia, has lived in San Diego for twelve years. She received her A.B. at San Diego State College and her Masters at United States International University. She is presently teaching Adult Basic Education in the San Diego Adult Schools. (Ed. note: Mrs. Papageorge's article covers the development of Mission Valley through 1968.)

to Mission Gorge will reveal only a couple of ponds and wet places. The river, for the entire span of its recorded history, has been a "now you see it, now you don't" vision for the inhabitants of the area. "It's upside down now!" chuckled one old-timer.² At present it does flow underground through the valley,³ but where do its ghostly waters originate? A much quoted passage from Smythe's *History of San Diego* describes it thusly:

The San Diego River rises in the Volcan Mountains 60 miles from the city. It flows through the El Cajon and ex-mission ranchos, the pueblo lands of San Diego and into False Bay. At Capitan Grande, 35 miles from its mouth, it is joined by a branch rising to the southeast of the Cuynamucu Mountains. Fed by numerous springs on its course, it flows to Capitan Grande all year, then it sinks into the sands and disappears in the curious manner of California rivers.⁴

"False Bay?" "ranchos?" "pueblo lands?" —Words from the past! We will find that the will-o-the-wisp river has played a dominant role in the settling and development of both Mission Valley and San Diego city as well.

La Canada de San Diego (1602-1846)

Mission Valley was known to the Spanish as La Canada de San Diego (The Glen of San Diego.) The first mention of the San Diego River was in the diary of explorer Sebastian Vizcaino. In 1602 he left San Diego Bay to investigate what he called False Bay (now Mission Bay) and he reported at that time that it was a "good port, although it had at its entrance a bar of little more than 2 fathoms depth, and there was a very large grove at an estuary which extended into the land, and many Indians."⁵

When the Spanish returned in 1769 with

the intent to settle the area, the San Diego River was found to be a "river with excellent water" by Captain Vicente Vila of the ship San Carlos. He also noted a village of thirty-five to forty families of Indians living along the river.¹² A chart by Vila shows the changeable river entering into San Diego Bay.¹³ Fr. Juan Crespi told of the first exploration (by white men) of Mission Bay in his letter of June 22, 1769:

When we reached the port we found, about one league distant, a good river with sufficient water, but in a few days it ran dry. Yesterday, May 21, Fr. Viscaino, and I went out to examine it, accompanied by the lieutenant of the troops Don Pedro Fages, and the engineer Don Miguel Costanso and seven or eight soldiers. We followed the course of the river which runs through a canada of much level land, in places extending from a quarter to half a league. The soil seems to be good for raising corn and wheat. In some parts there seem to be marshes and humid soil. All along the river bed there are poplar, willow, and alder trees. We found it dry in many places. In some spots there were pools with water, and in others there was only a streamlet. We walked about three leagues up the river bed and the valley; but conditions were the same, until we reached the sierra, where the bed narrowed; (ed. note. Mission Gorge) but there was no running water. We do not know whether any irrigation could be done from it. However, if there be sufficient rains, as in other parts, good crops of cereals could be produced, as there is much land and good pasture. Building stone we have not seen anywhere.¹⁴

When the group that had arrived by ship was joined by the land party of Fr. Junipero Serra, they moved their camp up to a bluff overlooking the river (both for safety and to be nearer the source of water) and on July 16, 1769 founded the Mission and military post that was known as the Presidio.¹⁵

The first year they planted their crops near the river, and the river rose so high that it carried away all that was sown. The second year planting was done further back from the stream, but water was so scarce that most of the plants died.¹⁶

The padres recommended that the Mission be moved further up the Valley in hopes of having better luck with the crops. Fr. Serra in his first report of the Mission for 1774 stated, "It is determined to move the Mission within the same canada of the port toward the northeast of the presidio, at

a distance of a little less than two leagues. The place is much more suitable for a population, on account of the facility of obtaining the necessary water, and on account of the vicinity of good land for cultivation. The place is called Nipoguay."¹⁷ The move was accomplished in August of 1774 and Mission Valley had its first white inhabitants and California's first mission had its permanent home.

It is thought that in 1774 the river returned to False Bay after a period of heavy rain.¹⁸ (The San Diego River has apparently shifted its channel back and forth between Mission (False) Bay and the San Diego Bay many times in the past. Historians conflict as to the actual years of change. It would be fascinating to do the detective work necessary to try to pin down the facts, but that would be another story.) Scarcity of water was the pressing problem of the padres, their growing mission and the surrounding Indian Villages. In 1792 Frs. Mariner and Torrent discovered fresh springs and had an irrigation ditch 1300 vares long built to bring water to the fields.¹⁹

The Spanish Military forces remained at the Presidio. According to British Captain George Vancouver who visited there in 1794, the military were supported by the fields and labors of the missionaries and their Indian neophytes.²⁰ Thus Mission Valley supported both settlements.

The marvel of the mission era was the dam and aqueduct which was started in 1807. Using Indian labor, they dammed the San Diego River at the head of Mission Gorge where the river ran the year round. An aqueduct was run nearly six miles through a rugged canyon to the fields of the mission. The padres didn't keep many records during this time but Frs. Sanchez and Martin reported in 1813, "We are working on an aqueduct, which is to bring water to the Mission." In 1814 they reported that 3.8 miles had been completed.²¹ Judge Hayes, who viewed the dam in 1867, said there was a settling basin with sand traps to clear the water before it entered the flume, and a four-inch penstock through which water was forced to turn a grist mill.²² With the advent of the water Mission agriculture flourished. Vineyards, orchards and crops were quite successful, as were herds of cattle. When the Mission was secularized in 1833, the



Mission Valley looking east from Presidio Hill, 1874

inventories show that it was a thriving enterprise.¹⁴

Don Blas Aquilar, an old time resident of San Diego, recalled that by 1821 there were 15 rancherias and two vineyards in Mission Valley. He said that all the crops were washed away and homes were damaged by a great flood that year, and the river changed its course back into False Bay.¹⁵

A tiny town slowly grew up at the foot of Presidio hill. The years of the 1820s must have been wet ones. Early citizens like Bandini and Pio Pico reported floods and each remembered a different year that the river changed course again. There is some evidence that the channel moved southward in 1821 and completed the change in the flood of 1825 back into San Diego Bay.¹⁶

All California came under the jurisdiction of the Republic of Mexico in 1824, and the town of San Diego was officially established as a municipality or pueblo in 1834. The townspeople planted their gardens in nearby Mission Valley, and obtained their water from the river or from under its sands.

In 1842, M. Duflot de Mofra, an attaché of the French legation to Mexico, visited the area and spoke of the port:

Certain areas are shallow, and some parts are so covered with sand banks that ships can easily run aground on the silt that the tiny San Diego River brings down from the mountains in the rainy season. Within the last few years the river, through the negligence of the inhabitants, has returned to its former channel and now empties into the waters of San Diego Harbor.¹⁷

The wandering river was now threatening to choke up San Diego Bay as it had already done to False Bay, once a good deep port as reported by Viscaino in 1602.

The Mexican government sold the lands which formerly belonged to the Mission. Maria Estudillo received the El Cajon Rancho lying along the eastern San Diego River in 1845. In 1846, as the Americans were about to take over, Pio Pico gave a deed of sale to Don Santiago Arguello for "the remaining lands unsold" of the Mission San Diego.¹⁸ A new era was about to begin. The Spanish had discovered the San Diego River and Mission Valley and though peopled sparsely, the valley was used for agriculture and cattle raising. After the first few years of adequate rainfall, the valley suffered under a long dry spell until the 1820s and 30s brought more rain and several floods. The Mission, once the center of culture in the valley, was falling into ruins.

Early American Days (1846-1900)

After three hundred years of Spanish rule, and twenty-four years under the Mexican flag, the Pueblo of San Diego and all of California was ceded to the United States for \$15,000,000, in 1848. Captain S. F. du Pont, U.S.N., of the U.S.S. *Cyane* took the port of San Diego and his officer, Lt. Rowan, raised the American flag over the plaza of Old Town on July 29, 1846.²³ Du Pont later viewed the dilapidated mission and the remains of its gardens and vineyards, remarking that, "A more miserable and naked sight I never saw."²⁴ The first map by an American was made in 1846 by Henry D. Fitch. It shows two channels for the San Diego River. The one to the east enters San Diego Bay, the other stops short of False Bay.²⁵

In 1849, Major A. R. S. Canby followed the San Diego River up to the ruined mission. He wished that the library could be cared for, and found the dam and aqueduct in good repair. With that water he felt that the valley could support a population of three or four hundred inhabitants.²⁶ Troops were stationed at the mission and were keeping it in good repair when John Russell Bartlett visited in May, 1852. They were withdrawn in 1855.²⁷ The mission was returned to the California Church in 1862 by President Abraham Lincoln,²⁸ but remained the haunt "of wild bees and owls"²⁹ for many years. In 1891 Father Ubach of San Diego began the first efforts to arouse interest in having it restored.³⁰

In 1850, New Town was laid out by William Heath Davis closer to the port. But water for the ships and for the new community still had to be hauled from the river.³¹ The population, according to the first census of 1850, was six hundred and fifty.³² The diary of the artist Powell who came to San Diego during the gold rush days of 1850 states of the phantom river: "bed of river dry when we came in; today the water came rolling down a foot deep—strange sight."

The first government action to imply that the San Diego river stood in need of curbing was the U. S. Coast Survey whose report of 1851 by A. D. Bache warned that the bay may be destroyed by the silting action of the river. "The only remedy for this evil is to turn the river into False Bay again. This is an excellent harbor and its loss would be

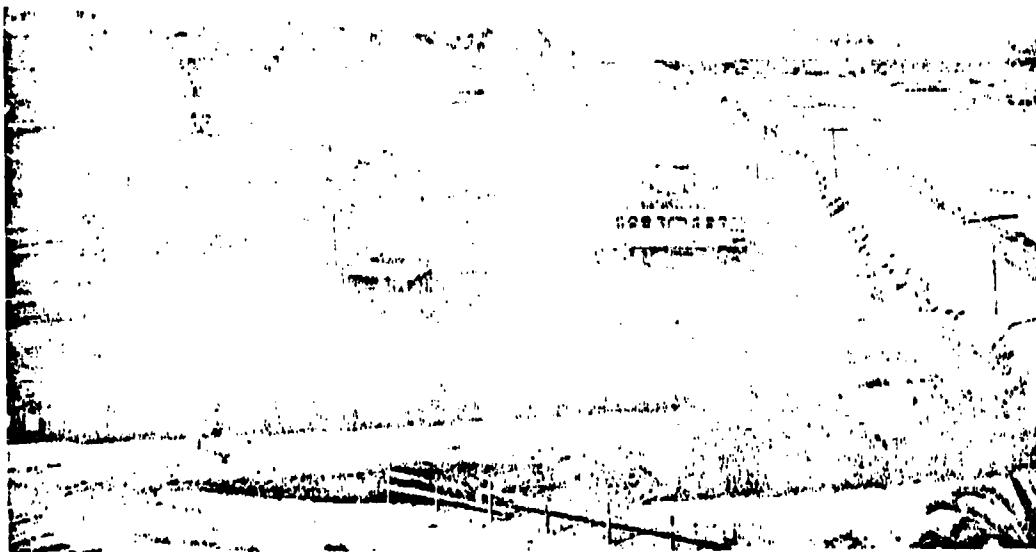
severely felt."³³ Thus, Lt. George Horatio Derby, of the U. S. Army Corps of Engineers, was sent to San Diego in 1853 to build what was to become known as Derby's Dike. On his survey map he noted that "during freshets of the rainy season, the marsh south of town is entirely inundated as well as part of the valley and plain bordering on the river."³⁴ Derby wanted to create a straight channel and levees for the river but he was ordered to deepen the old channel and build a levee from a point at the foot of the Presidio hill to the foot of Point Loma (1190 yards). The old *San Diego Herald*, Sept. 24, 1853, noted that "sixty laborers with carts, wheelbarrows, etc., are to be put on the work at once and by carrying it on energetically it is hoped that it may be entirely completed before the commencement of the rainy season." Derby complained that the plan was not sound, and funds were insufficient, and sure enough, the first "freshet" took out part of the dike, and in the heavy rains of 1855 the river went back into San Diego Bay.³⁵

Derby became known nationally as a humorist and his own comment on this work at San Diego is typical:

Here I saw . . . Derby . . . an elderly gentleman of emaciated appearance and serious cast of features. Constant study and unremitting attention to his laborious duties have reduced him almost to a skeleton. . . . He was sent from Washington some months since to dam the San Diego River and he informed with a deep sigh and mournful smile that he had done it (mentally) several times since his arrival.³⁶

A painting shows Derby's Dike in 1853 and in Mission Valley beyond, there are a few farms outlined in trees, and a large undeveloped area.³⁷ Two years of heavy rainfall preceded 1855 when 12.7 inches of rain added up to the flood that washed out Derby's Dike and scoured out the old burial ground at the foot of Presidio Hill as it returned the river to its San Diego Bay channel.³⁸

The great³⁹ flood of 1862 is said to have been the largest in volume.⁴⁰ (Precipitation was 15.75 inches that year.⁴¹) The vast flat between Old Town and False Bay was covered. Houses were swept out to sea; gardens, olive orchards, and a grove of trees thirty feet high were washed away. Capt. Sherman lost his horses trying to cross the stream



Derby's Dike, 1914

and a Capt. Johnson was unable to get across to his home for two days. Although apparently the volume of water was vast, there was no terrible loss of property.⁴² San Diego was only a town of about seven hundred and fifty people, and Mission Valley was still sparsely settled.

Although a few wells were in use in the town, Mission Valley was still the principal source of water. It was known to old-timer Stephen Peters as *Aqua de la Comunidad* and was for general use as were the community grazing lands.⁴³ The water was obtained in dry season by sinking boxes or barrels into the sandy river bed.⁴⁴ Water was carted up to the Hotel in town and cost twenty-five cents a bucket.⁴⁵

In the 1860s, a road crossed the river at Old Town and went up the north side of the river to the mission. One early resident of San Diego remembers that there were several houses on the north side of the river. One man had his house and garden in the river bed and people tried to tell him he would be washed away. He would not believe them, but woke up one morning in the flood of 1867 and found that he and his house were floating down to the bay.⁴⁶ Two years of heavy rains preceded the medium flood of '67. This one, together with the flood of '64, had washed away a twenty-

four foot section of the Mission Dam although much of it remained in good repair.⁴⁷

The 1870s and 80s were "boom and bust" years for San Diego. The population rose from 2300 in 1870 to 16,000 in 1890. Mission Valley (it received that name in 1870)⁴⁸ was the scene of truck gardening as far up as the mission. Sheep herding and bee-keeping were practiced and the marshes and fields were used for duck and dove shooting.⁴⁹ An advertisement in the *Union* of Jan. 6, 1893, offers 400 acres of level land in Mission Valley, five miles from town, for \$60.00 per acre. A road crossed the river at the foot of Sandrock Grade and a store called C. W. Sandrock's Tienda was located there. The farmers brought in straw during the summertime in order to pack down the damp sand to provide a firm crossing. Fording the river was impossible if the river was flowing to any extent.⁵⁰

The San Diego Water Company was founded in 1872 to meet the needs of the growing town. While they had several wells in town, the people continued to rely on wells in the San Diego River bottom. The *Union* of June 15, 1877, described the large excavation in the river bed about seven miles from its mouth. There was a pumping station run by steam engines which pumped the water up to a reservoir on the table land

rising to the north of the city. The system served the city until 1912.⁵¹ The same newspaper article noted that two or three times during the last thirty years, the river had flowed all year, and several times it had flowed until September.

During the winter of 1873-74, the river overflowed its banks four times, in December, January, February, and March.⁵² For two months the stages were unable to cross the river and the mail was ferried back and forth in a row boat. In 1875, Congress appropriated \$80,000 for a government dike to turn the river once more into Mission Bay. Work was done under the supervision of Lt. Weeden and the dike was completed in 1876.⁵³

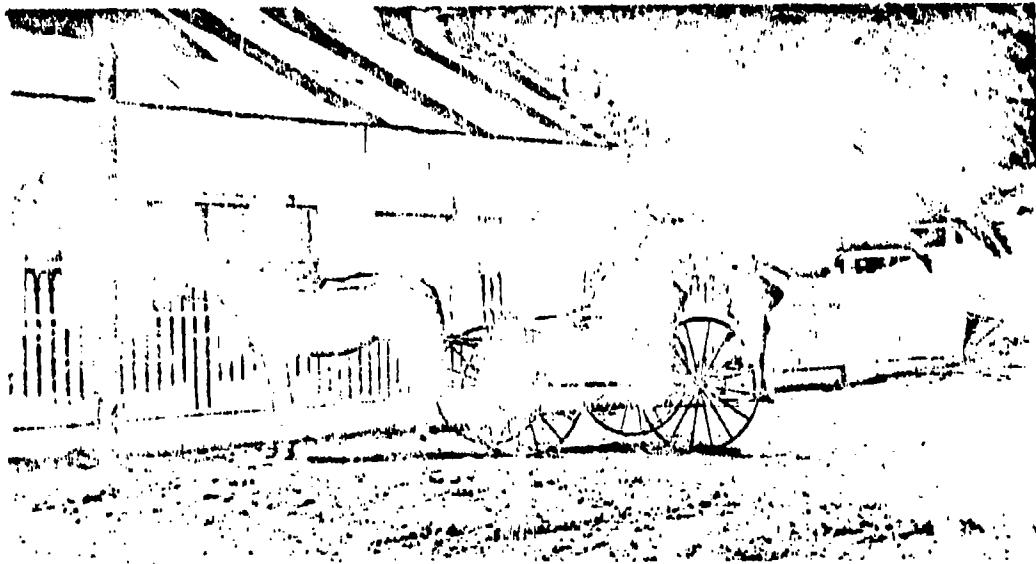
In 1881, the California Southern railroad was built across the San Diego River on pilings driven by steam power.⁵⁴

The next great flood was in 1884. A record of 25.97 inches of rain fell that year with a long wet season continuing until June.⁵⁵ The warm and wet spring produced several phenomena. In a diary kept by Mr. Crouch of Oceanside, he remembered that the grass "outgrew itself" and contained no nutriment, causing the cattle to suffer and the lambs and yearlings to starve to death on the feed.⁵⁶ That spring also produced a flood of butterflies followed by swarms of cutworms and caterpillars, creating a disastrous year for farmers.⁵⁷ Damages to crops

and cattle were severe, and although the pumping station was able to withstand the flood, it was moved to the south side of the river in 1895.⁵⁸ The railroad to the north was out for nearly nine months and the river flowed all year.⁵⁹ A flood occurred again in 1895, with its accompanying damage to crops. Bridges and railway trestles were washed out again.⁶⁰

In 1887, Mission Valley had its land "boom and bust" fling in the Grantville residential project at the upper end of the valley near Mission Gorge. It was so named in hopes of attracting Civil War Veterans but it was never a success and the land "gradually became farming land as nature had intended it to be." (Opinion of Mission Valley Improvement Association, *Union*, 3-11-46, 7:2.) Allen's Dairy was developed on an old Mexican grant that was bought for taxes. Bernard started a large nursery in the valley with thousands of rose cuttings he brought from France.⁶¹

Thus Mission Valley retained its rural nature as the turn of the century approached. Floods periodically washed out the truck gardens and farms but actual property damage was slight as real property improvements were few and the population was small. The disruption of mail and rail routes through Mission Valley was a severe handicap for the citizens of the whole area during flood periods.



Mission Valley Water Works, 1906

Dairies and Bridle Paths (1900-1950)

At the turn of the century, San Diego was a growing city of 17,700 whose interests were elsewhere than in Mission Valley. "It's only Mission Valley," quoted one oldtimer who complained of the marshes and mosquitos.⁶² An earlier visitor from Los Angeles had spoken of Mission Bay as having "No commercial value" and that the river could fill it up "with impunity."⁶³ To view the rural scene from above was, however, a favorite pastime of San Diegans who visited Mission Cliff Gardens at the foot of the trolley line on Park Avenue. The beautifully kept grounds opened onto a vista below of the river meandering through small groves and farms. A gazebo was perched on the rim of the cliff. This was also a favorite spot to watch the rampaging river during flood years.⁶⁴

Some concern was felt for the problem of flooding. A few people condemned the practice of burning off the brush cover along the waterway to improve the grazing areas, but many would not believe that it would affect rain run-off. The recent floods had served to further denude the valley hillsides.⁶⁵

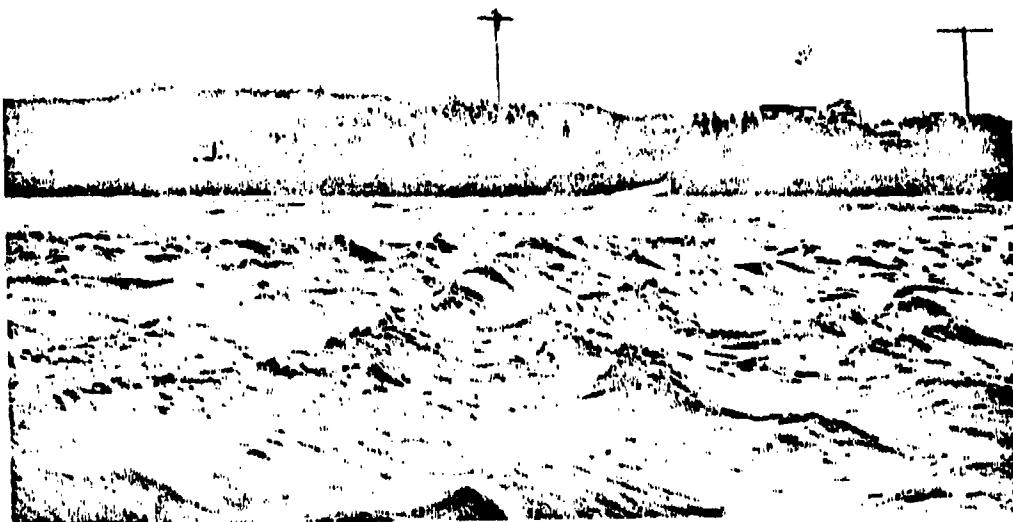
In 1901, the city sold its first water bonds and bought the San Diego Water Company. The main source of water was the reservoirs made by damming sources in the surrounding watershed areas, although an expanded well-field in Mission Valley was used until 1927. The city attorneys, in 1914, filed "An Opinion on the Rights of the City of San Diego to the Waters of the San Diego River" which was the beginning of a lengthy legal battle to prove the city's prior and paramount rights to the waters of the entire river system.⁶⁶

The first large flood of the twentieth century was in the winter of 1905-06 after a very wet year in 1905.⁶⁷ The embankment at the end of Old Town bridge washed out, the channel shifted to the north, and the river ran until late in the summer.⁶⁸

The largest, most destructive, and most famous flood of recent times occurred in 1916, again following a very wet year.⁶⁹ (See also Journal Winter 70.) The rainfall of the previous years was so distributed that there was little run off and the water in the city's reservoirs was very low. In December of 1915, Charles Hatfield appeared before

the City Council. As a "rainmaker," he said he could fill the Morena reservoir for \$10,000. The city officials voted to accept his proposition and told the city attorney to draw up a contract. Hatfield did not wait, but built a platform and began shooting off chemical explosions.⁷⁰ The rain began on January 16, 1916, and lasted four days. The newspapers welcomed the rain as the reservoirs began to slowly fill and noted that some people were beginning to take Hatfield seriously.⁷¹ Mission Valley flooded, quickly wiping out the vegetable gardens and homes of the Chinese and Japanese farmers, and ten of the twelve wells used by the city. The police and Navy Militia used flat bottom boats to rescue families. The city's Isolation Hospital in Mission Valley had to move their patients up to the second floor as the water rose.⁷² Hundreds of people flocked to Mission Cliff Gardens to watch the spectacle below,⁷³ and an editor in the *Union* (1-18-1916) stated that he felt the water in the reservoirs offset one-hundredfold the damage to property, private and municipal. He said suffering may grow, "but the run-off into reservoirs will also continue giving the city and county a wealth of water for future use and bringing with it the happiness and prosperity that is only possible through such a beautiful water supply."

The sun came out for a few days, and then a second storm began to batter the city. The San Diego River rose six feet higher. Bridges along the river were washed out, although the railroad bridge was partially saved by parking train cars loaded with rocks on it, and opening up a spillway through the earth to one side.⁷⁴ There are many tales of heroism as more people were rescued from their homes in Mission Valley. *Union* headlines of the 27th stated: "Dams holding against Great Flood as Wires go; City Water Supply All Right." The Otay Dam went out at 6:14 that night, scouring out its valley to the bay and taking the lives of twenty-three people.⁷⁵ The peak flow of the San Diego River was established at 75,000 cubic feet per second, with total physical damage at \$565,000.⁷⁶ All important highway and railroad bridges were destroyed or severely damaged, many miles of roadbeds and tracks were washed out, and telephones and telegraph lines were down. For a month all supplies were brought in by



San Diego River at Old Town during 1916 flood

ship, and only the wireless remained as a means of communication.¹⁷

The city was soon deluged by law suits, one of which was Hatfield's, asking for his \$10,000. The city attorney told Hatfield's attorney that if Hatfield would sign a statement assuming all responsibility for the flood and absolving the city, the city attorney would recommend that the Council pay the full claim. "Go to hell," said Hatfield's attorney and that was the end of that.¹⁸

1920 brought a new development to Mission Valley. The Mission Valley Oil Enterprise Company sank a well near the foot of Texas Street. Although they found a showing of oil, it could not be brought up in productive quantities.¹⁹ A medium flood occurred in 1921 and the City Isolation Hospital was again isolated. Although damage was not great, it was estimated that four billion gallons of water rushed through Mission Gorge and the *Union* urged that a dam be built there.²⁰

Next to the flood of 1916, the flood of 1927 was the most damaging. The storm filled the county reservoirs and "a 10 year period of prosperity was assured for the city," said the *Union* of 2-17-27. The curious were again attracted to the bluffs above the river, and one witness recalls watching a rooster ride out to sea on a box.²¹ This

was the flood which the writer's husband remembers as a little boy of five. He recalls that it rained a long time, and everything was very wet and he was hospitalized for ten days with typhoid fever. It would seem to the author that the water supply must not have been too safe.

After long years of litigation, the State Supreme Court ruled in 1930 that San Diego did have prior and paramount right to the entirety of San Diego River water.²² The story of this clash between public and private interests is a stormy one, but is an interesting chapter in San Diego history. The settlement led the way to the building of the El Capitan Dam and Reservoir (completed in 1935) and the San Vicente Dam and Reservoir (completed in 1943), both of which store water from the water shed along the upper reaches of the San Diego River.

The Government Dike had been raised once in 1917 and was raised again in 1933.²³ The dirt road through Mission Valley, often muddy and impassable during rainy season, was replaced in the early thirties by a two-lane paved road by the San Diego County Highway Development Association.²⁴ There was a flood of medium size in 1937 and again in 1938. The latter was more serious in the North County. The railway was blocked; one witness on the way home from

Los Angeles was on a train that was stalled near Escondido for seven hours. Finally the train backed all the way to Los Angeles and it was four days before it could get back as far as La Jolla. Roads and bridges were still closed and her husband had to drive around the east end of the valley to meet her in La Jolla.⁵¹

By 1940, San Diego was a city of 203,341, and Mission Valley had developed twenty dairies. This was now the primary activity, although vegetable farming remained a close second, and sand and gravel businesses had existed there for many years. Early in 1940, a Mission Valley Improvement Association was organized in hopes of protecting the area from too much exploitation. They proposed to make bridle paths "wide enough for buggies and safe enough for bicycling and walking" throughout the valley.⁵² Horse farms were numerous and a polo club attracted much attention in the news.⁵³

The war years brought a huge jump in population and the city, with help from the U. S. Navy, brought in water via canal from the Colorado River. The first Colorado River water reached the San Vicente Reservoir in November of 1947 just three months before the local supply was exhausted, a very close call with disaster.⁵⁴

The Federal Government in 1945 authorized a report on a flood control channel of 3.3 miles in length at the downstream end of the San Diego River. A hydrology report was made in 1947 by the Army Engineers and San Diego began the second half of the century with some of her flood control problems in mind.⁵⁵

Commercial Explosion (1950-68)

Work on the flood channel and new channel entrance to Mission Bay began in 1950 and was completed in 1953. It consisted of 3.3 miles of rock-revetted levees twenty-five feet high forming a channel of from 200 to 250 feet in width.⁵⁶

San Diego Magazine of August 1950 pointed out that Mission Valley was a horse's paradise, another Rancho Santa Fe, containing twenty miles of bridle trails. It told how the Mission Valley Improvement Association had fought against roadside stands, an airport, and a cocktail lounge for State College students. It contained a plea

to the San Diego Planning Commission not to let the valley become a non-stop superhighway for the big trucking companies.

But such was not to be. Charles Brown was the "pioneer" of the commercial building boom although the Mission Valley Golf Club had been operating since 1947. (The Golf Club was private but dues were low, \$10 a family, and it was felt to benefit most of the community.⁵⁷) In the early 50s, Brown made an evaluation of the land and found that the "only alleged disadvantage seemed to be fear of flood."⁵⁸ He bought a 22½-acre site for \$79,000 and built the Town and Country Hotel. He estimated shortly before his death in 1966 that the land was now worth \$125,000 per frontage acre on Hotel Circle and his Town and Country Hotel was worth 2.25 million dollars.⁵⁹

So began the rush to build the brightly lighted Mission Valley we see today. But not everyone was happy. "Corruption was the word applied to the City Council in November of 1957 by an article in *San Diego Magazine* when writing of the May Company's buying of land in Mission Valley for a proposed shopping center. It made a plea for encouraging the City Planning Commission's idea for a green belt policy, and felt that the Commission should tell May Co. where to go: they suggested an area near Rosecrans. The article predicted (correctly) that full-flood commercialism would surely follow.

F. F. Friend, consulting hydraulic engineer, was engaged by the City Council to report on flood control in Mission Valley. He pointed out the need for flood zones, urged a 250 foot wide unlined channel, and hoped that the valley would develop into an area complementing Mission Bay with accommodations, entertainment, a motor boat canal, scenic roadways, bridle paths, etc. Although the editor of *San Diego Magazine*, who commented on this, thought it was a great non-political and non-commercial (not anti-commercial) scheme, he feared it would be "buffeted by commercial pressure groups."⁶⁰

Congressman Bob Wilson said that in 1959 the heart of Metropolitan San Diego had moved northward to Mission Valley.⁶¹ An illustrated feature in the *Union* (6-21-1959) was titled "A Giant Awakes" and

noted the motels and new building activity plus a picture of the rural scene in 1953. Millions were spent in the Valley. In 1961, assessed valuation on vacant parcels had increased 17 percent in three years, and as much as 1,500 percent in six years. Freeway 80 cost 15 million for the stretch between Taylor Street and Fairmount Avenue. The \$25 million May Company Mission Valley Shopping Center was opened in February of 1961.¹⁰ The First Methodist Church cost \$1.6 million; \$2 million were needed to renovate the Bowlero into the Masonic Temple,¹¹ and unknown millions were spent in building the Mission Square office building, Cinerama 21, Center Theater, Mission Valley West, Mission Valley South, luxurious automobile agencies and restaurants, enough new motels to fill Hotel Circle and a \$27 million stadium to seat 55,000 people.

Real property worth millions of dollars exists in the Valley, the scene of so many floods. A long series of dry years has certainly favored the building projects. In 1965 rain flooded the lower parts of Mission Valley. One motel had a foot of water over

the floor; the bridge over the river at Zion Road washed out but no serious flooding or damage occurred.¹²

May Company hired engineers to study the flood problem and consequently built with the problem in mind. They built a riprap around the shopping center and designed the Center so that the parking area is underneath and the shops are on the second level. Pumps are needed constantly to keep the normal drainage of water pumped out and into the nearby drainage ditch. In case of a major flood they predict that the parking area would be five feet under water. City engineer Ed Gabrielson estimates that most of the motels on the north side of Highway 80 would be inundated.¹³

The city is aware of the flood problem. Each permit must show on the map the area of flooding clearly marked as such, and space must be left for the proposed flood control project.

In 1959 Congress authorized, and the Army Corps of Engineers completed, a report on flood control in Mission Bay.¹⁴ The proposal suggested a concrete lined, rectan-



Mission Valley looking west, 1961

gular flood control channel about 5.2 miles in length reaching from Zion Avenue in Grantville to the existing channel at the Morena bridge. It would range from 200 to 250 feet wide with tributary channels extending from several canyons. At the upper end there would be two inlet levees.

Property owners in Mission Valley asked the City Council to support the narrow concrete-lined channel as they felt the wide unlined channel (850 foot swale) suggested by F. F. Friend would harm their property value.¹⁰¹ The Civil Defense office announced that the proposed channel would not be used as an emergency escape route during an atomic disaster.¹⁰²

After being approved by the Chief of Engineers and by the Secretary of the Army, the proposed flood control project (estimated cost—\$22,300,000) was approved by the various congressional committees and houses and was signed by President Johnson in October, 1965.¹⁰³ Funds were refused in 1966 and thought to be a casualty of the Vietnam War.¹⁰⁴ In 1968 the Army engineers and the State Department requested that \$300,000 be budgeted for advanced engineering and design of the Mission Valley Flood Control Project. No action has as yet been taken but Mr. Lockhead of the Engineering Department of the City of San Diego said the allotment had a very good chance of being passed. If the money is appropriated, the engineering and design would begin and actual construction would be two or possibly three years away and, of course, would only follow the approval of the actual construction funds.

The Plausible Possible?

"Yes, Virginia, there is a San Diego River." Its presence was one of the main reasons for locating the first Alta California Mission on San Diego Bay. It was the main source of water for the slowly growing community for over one hundred years and remained a secondary source of water until the nineteen forties. The Mission of San Diego de Alcala was moved to its present location in the upper end of Mission Valley so that the water of the inconstant river might be better utilized for agriculture. The small community of Indians and priests finally began to prosper when the river was dammed and the aqueduct assured an adequate

water supply. The secularization of the Mission brought an end to this settlement, but the river continued to be the focal point for the ranchos and rancherias which developed along its banks. The land remained largely agricultural throughout the nineteenth century. During that century, the San Diego River overflowed its banks and flooded Mission Valley many times, destroying crops, pastureland and homes. But the farmers returned to plant their crops and to rebuild, for, in the dry years in between, proximity to the precious water outweighed the dangers of flooding.

The main town, however, grew up on the higher mesa lands that flattened out as they approached the harbor of San Diego Bay. Floods were not a problem here and water could be found in wells or hauled up from the river. The main commerce developed near the port facilities.

During the first half of the twentieth century, Mission Valley developed as a dairy and horse raising center. Truck farming continued as a close second in importance. Railroads, highway, and telephone and telegraph lines crossed Mission Valley as the valley lay across the City's access to the more populous north. Floods became more disastrous as development occurred in the valley, but to the main body of San Diegans, the destruction of communication routes was the primary inconvenience caused by the flooding.

As the city doubled and trebled in size, the use of the undeveloped land of Mission Valley close to the heart of the city began to be re-evaluated. As tourism flourished and Mission Bay was developed into an aquatic park, the need for resort-type accommodations grew and the large hotels and motels were the first to see Mission Valley as a superbly located spot for their uses. The crossing of two major highways made a highly desirable location for a giant shopping center. Easy access contributed to the development of two huge sports edifices, the Sports Arena at one end of the valley and the San Diego Stadium at the upper end near the restored Mission.

Have these builders forgotten the flood problem? No, the city zoning ordinances insure that each permit for use of the land is clearly marked as to the area subject to flooding. The city of San Diego added two

zones to its zoning ordinance in 1966. The FC Zone (Flood Control) directly regulates the uses of land within the natural channel of a stream; uses permitted are restricted to agriculture, recreation, and other open space uses that would not obstruct the natural flow of the stream. The FP zone (Flood Plain) regulates the intensity of development in areas of inundation.¹⁰⁴

There are two methods of flood control: protective and preventive. The protective approach proposes engineering techniques that encourage or depend upon urbanization. The preventive approach proposes to preserve the natural condition of the land and limit its urban uses. The protective approach seeks to keep the flood water away from the encroaching people; the preventive approach seeks to keep people out of the way of the flood waters. Protective measures are usually necessary after the fact of commercial and/or urban building, and the Federal Government agrees to improve rivers for flood control purposes if the benefits are in excess of the costs.¹⁰⁵ This is what has happened in San Diego. The earlier Planning Commission's dreams of a wide green belt in the valley and the voices of some of the citizens were too little and too late. According to Mr. Lockhead of the City Engineering Department, fifteen years ago something might have been done. But the city asked the Federal Government for protective measures in 1965 and the land owners of Mission Valley wanted them. That was the last time the citizens could have protested.¹⁰⁶ The protective flood control channel is still several years from the start of construction. A conservative estimate for its completion is five years, probably longer.

What are the dangers of flooding in the interim? In 1965, D. E. Lake of the County Civil Defense office said that San Diego County is long overdue for a major flood. He said that major floods have hit on the average of every 17 years for the last 125 years and that dams in the county are primarily designed for water storage, not flood control.¹⁰⁷ City Engineer Ed Gabrielson said that if a flood were to hit in 1966, there would be \$24,835,000 damage to property in Mission Valley. He said the flood threat had worried engineers and geologists for years.¹⁰⁸ A projected estimate of future flood damages from a standard project flood was

made for the Corps of Engineers' report. Old-timer Don Stewart predicted in his book *Frontier Port* that the cycle of wet years will return. "If we have 2 or 3 wet years in succession, our dams will be overflowing again. I hesitate to even think of what is going to happen to Mission Valley."¹⁰⁹ Shelley Higgins, another long-time resident, said that the miles of pavement and terraces, fills, etc. will add to the rain run-off. To him the next flood is a certainty, and the only question is when.¹¹⁰

The San Diego River, it seems, now plays a lesser role in the development of Mission Valley. The forces of nature controlled men's actions until the press of population and economic factors put man's need for space above nature's probability of disaster. Economic determinism forced the development of real property of great value along the river bed of a river that still offers the threat of flooding. And the threat will stand until the flood control channel is completed. Meanwhile the property owners in Mission Valley are playing a kind of Russian Roulette with the river. Do the many dry years favor their odds, or shorten them? The Federal Government, too, must play the odds in allocation of its monies. Present needs must be met before projected possibilities.

The mills of government grind slowly and the threat of floods remains.

"Is today the day, Daddy?"

FOOTNOTES

1. Remark of student in Historiography class, San Diego State College, April 25, 1968.
2. Street map of San Diego, Automobile Club of Southern California, March 1968.
3. Mrs. Robert Sams, personal interview with the author at San Diego, May 15, 1968.
4. Doris Christman and Dorothy Self "Ambitious Valley," *San Diego Magazine*, (August, 1950) p. 16.
5. William E. Smythe, *History of San Diego, 1542-1907* (San Diego: The History Company, 1907) p. 693.
6. *The San Diego Union*, 11 Mar. 1940, 7:2.
7. Richard E. Pourade, *The Explorers* (San Diego: Union-Tribune Publishing Co., 1960) p. 184. Translation of diary of Vizcalino.
8. Fr. Zephyrin Engelhardt, *San Diego Mission* (San Francisco: James H. Barre Company, 1920) p. 11, 12. Record of Captain Vilu.
9. Pourade, *Explorers*, p. 102. Chart of Capt. Vilu.
10. Engelhardt, *op. cit.*, p. 15, 16. Letter of Fr. Crespi.

11. *Ibid.*, p. 49. Letter of Mr. Palau.
 12. *Ibid.*, p. 50, 51. Letter of Mr. Palau.
 13. *Ibid.*, p. 56. Letter of Mr. Betta.
 14. Edward J. P. Davis, *Historical San Diego*. (San Diego: Pioneer Printers, 1953) p. 20.
 15. Engelhardt, op. cit., p. 147, 149. Report of Mission operations.
 16. *Ibid.*, p. 173. Letter from Vancouver.
 17. Richard F. Pourade, *Time of the Bells* (San Diego: Union-Tribune Publishing Co., 1961) p. 20. Records of the Mission.
 18. *Ibid.*, p. 121. Letter of Judge Hayes.
 19. Richard F. Pourade, *Silver Dons* (San Diego: Union-Tribune Publishing Co., 1962) p. 4.
 20. *Ibid.*, p. 69.
 Pourade, *Explorers*, p. 49, Report of Derby State of California, Department of Water Resources, Bulletin No. 113, San Diego County Flood Hazard Investigation (Sacramento: 1964) p. 11.
 21. Pourade, *Bells*, p. 230. Letter of de Mofra.
 22. Smythe, op. cit., p. 73.
 23. Pourade, *Silver Dons*, p. 81. Log of USS Cyane.
 24. Pourade, *Silver Dons*, p. 82. Letter of du Pont.
 25. Davis, op. cit., p. 27. Map of harbor.
 26. Smythe, op. cit., p. 263. Letter of Canby.
 27. Engelhardt, op. cit., p. 303. Letter of Bartlett.
 28. *Ibid.*, p. 344. Proclamation of President Lincoln.
 29. *Ibid.*, p. 303. Letter of Hord.
 30. *Ibid.*, p. 309.
 31. Don M. Stewart, *Frontier Port* (Los Angeles: Ward Ritchie Press, 1953) p. 80. Testimony of old-time residents.
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 45. *Ibid.*, p. 64. Report of old-timer.
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51. City of San Diego, Utility Department, *History of the Development of the San Diego Water Supply*, James L. Perry (San Diego: 1965) p. 1.
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 53. Pourade, *Glory Years*, p. 160.
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 64. Christian, op. cit., p. 16, 17.
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 71. Higgins, op. cit., p. 83.
 72. *Union*, 1-17-1916, 1:1.
 73. *Union*, 1-18-1916, 1:1.
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 81. Mrs. James Minor, personal interview with author at San Diego, 15 May 1968.
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 91. Christian, op. cit., p. 14-17.
 92. *Union*, 10-23-1946, B1:2.
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 95. *Union*, 3-27-39, 24:4.
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 108. *Union*, 9-30-1965, 23:2-3.
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 111. Higgins, op. cit., p. 183.

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Davis, Edward J. P., *Historical San Diego. The Birthplace of California*. San Diego: Pioneer Printers, c. 1953, pp. 120.
 Davis was public relations officer for the City Harbor Commission, and book is based on his lectures. Its historical correctness has not been evaluated by the author but it contains copies of some early maps of the harbor which were quite helpful.

Engelhardt, Fr. Zephryus, *San Diego After San Francisco*. James H. Harris Co., 1920.
 Contains many primary source materials such as letters and reports of the padres in their entirety, and thus a very valuable reference for those who cannot get to the original documents.

Held, Spencer, *This Is Heaven!* San Diego: Neyenck Printers, Inc., c. 1960, 55 pp. Illus.
 A newspaperman's humorous description of San Diego with anecdotes within his memory. Not too helpful for this project.

Higgins, Shelle J. (as told to Richard Munfield), *This Fantastic City San Diego. Official City Policy History* San Diego, c. 1958.
 Higgins was city attorney and tells the city's side of civic affairs, principally the case for paramount water rights. His bias is outstanding and it would be interesting to read the other side of the story, i.e., of those who had private interests such as "Ed Fletcher's Monolith". Similar matter deals with water rights and also the flood of 1916. His dealings with Hufield are chilling.

Mills, James, *San Diego, Where California Began*, San Diego: San Diego Historical Society, 1960, pp. 37.
 "A brief history of the Events of Four Centuries." Contains U. S. Census figures from 1850-1950. (No other primary sources.)

Pourade, Richard F., *The History of San Diego: The Explorers*. San Diego: The Union-Tribune Publishing Co., c. 1960, XX, 203, Illus., maps, chronology, biblio., index.

... *Time of the Hills*, c. 1961, XII, 262, Illus., maps, chron., Appendix, translations, transcription, biblio., index.

... *Silver Dons* San Diego: Union-Tribune Publishing Co., c. 1962, 243 pp., Illus., maps, chron., biblio., index.

... *The Glory Years*, San Diego: Union-Tribune Publishing Co., c. 1964, 274 pp. Illus., maps, chron., biblio., index.

This series of books about San Diego History were commissioned by J. B. Copley, Chairman of the Board of Copley Press. They are beautifully illustrated and printed. The first volume is rich in primary source materials with translations from the Spanish. It is noted that some of his writing follows very closely that of Smythe's earlier work. It has been suggested that he mentioned sources, or showed them in pictures without using them to carefully document his facts (Cordiz). It would seem that Mr. Copley was satisfied to have a beautiful format without too much accuracy from Mr. Pourade. This writer has not the experience to judge for himself and chose to use the books largely for their primary source material.

Smythe, William E., *History of San Diego, 1842-1907: An Account of the Pioneer Settlement on the Pacific Coast of the United States*. San Diego: The History Company, 1907, Illus.
 Considered an excellent historian who made good use of his available sources (opinion of Mr. Cordiz). Has many quotations from origi-

nel sources. The latter half of his book has less coherence than his account of the earlier days of San Diego history. Quotations many old-timers. Has Weather Bureau statistics from 1851-1903.

Stewart, Ivan M., *Frontier Port: A Chapter in San Diego's History*. Los Angeles: Ward, Rhinelander Press, 1963. xvi, 173 pp. Illus. Index.

Stewart was born in 1873 in San Diego. He served as a city councilman, City Treasurer, Post Master, and was President of the Historical Society. He writes of the "men always distinguished, late Victorian Post" and surely does not try to "pretty" the past. Helpful sources both for bonds and conditions in Mission Valley in the past.

Sugg, M. M., Editor, *Stories of Old San Diego over Two Centuries*. San Diego: The Committee for the Annual Trek to the Sierra Cross, 1946. c. 1946, pp. 48.

Collection of short stories by numerous authors on San Diego's early history.

Union Title Insurance and Trust Company, San Diego County Historical Scrapbook. San Diego privately printed, c. 1953. 32 pp. Illus.

Contains pictures mainly of buildings in the 50 years before 1953. It was of little help to this study but would aid in economic research of this area of the past in San Diego.

B. GOVERNMENT DOCUMENTS

San Diego City, City Planning Department, *Guidelines for the Use of San Diego's Floodplains*. San Diego, 1967. pp. 41, biblio.

A report to examine the use of floodplains in Metropolitan San Diego, evaluate uses and discuss conflicts in occupancy. One must bear in mind that there is often a difference in philosophy between the planning department of a city and its managerial offices, and between private and commercial interests in planning for land use.

City of San Diego, Utility Department, *History of the Development of the San Diego Water Supply*. James F. Perry, San Diego, 1965. MMH10. GRAPHIC-D

Chronological listing of development of water systems. Some dates do not agree with other sources. Would need further investigation to prove which is reliable.

City of San Diego, Water Production Division, *Book of San Diego, Parks and Recreation*. San Diego, 1968. 12 pp.

Each dam listed on separate page, with lists of building dates, cost, capacities, etc. No narrative. Only El Capitan Dam and San Vicente Dam are pertinent for this study.

State of California, Department of Water Resources, Bulletin No. 112, San Diego County Flood Hazard Investigation, Appendix A, Regional Flood Frequency. (NAGTMS). Sacramento, 1963.

Technical data published in advance of main study to delineate areas subject to flooding in San Diego County. A detailed analysis of the methodology of flood frequency analysis estimating peak flood discharge at 50 and 100 year recurrence intervals. Deals mainly with upper San Diego River but is helpful in understanding methodology.

State of California, Department of Water Resources, Bulletin No. 113, San Diego County Flood Hazard Investigation. Sacramento, 1964.
The report of an investigation initiated by the State Department of Water Resources at request of county to delineate the areas subject to flooding along certain portions of the major coastal streams in San Diego County. Deals with San Diego River from Mission Gorge to San Vicente and El Capitan Dams, but has general information of value to subject of this report, plus maps and charts.

United States, Secretary of the Army, Chief of Engineers, Department of the Army, *San Diego River (Mission Valley) California*. Washington: Government Printing Office, 1963.

The report on the need, feasibility, cost, and description of the flood control channel for Mission Valley which was approved by the President in 1963. Has short history of past floods and technical data proving that the cost of the proposed channel is far less than expected damage to Mission Valley in case of flood. Vital to this research project.

C. PERIODICALS

Christman, Doris and Dorothy Self, "Ambitious Valley," *San Diego Magazine*, (August, 1950), 14-17.

Description of Mission Valley as a "Paradise" - "How Mission Valley Improvement Association has fought to keep Valley natural." "Copping," a View of the Valley," *Union-Tribune Topics* (April-June, 1961).

Pictures from a helicopter of developments in Mission Valley in 1961, plus description of some of the building projects there.

"Don't Kiss the Valley Goodbye," *San Diego and Point Lonsdale* (No. 1937).

Cries "corruption" at city officials for planning to sell out to May Company. A cry to keep back full-blood commercialism. Opposing side to City, interesting companion.

"Editorial," *San Diego and Poway Magazine*, (May, 1958) p. 49.

A deliberate reprinting of the City Planning Director's report and a plea to resist the commercial pressure group grab for Mission Valley.

D. NEWSPAPERS

The San Diego (California) Union
A daily newspaper; it has been indexed by subject matter from 1872 to January of 1964 and filmed on microfilm at the Public Library. It is published by James E. Copley Press, Inc. and is considered to be conservative in outlook. Newspaper articles when used as primary sources must be viewed with regard to sensationalism in the handling of catastrophes such as floods, and also for the bias of the editorial staff when reporting civic events. The Spreckels family interests controlled the *Union* when the Spreckels family ran the *Sun*. The *Union* supported the City's paramount water rights case. The *Sun* was on the side of the private interests.

E. DIARIES

Reminiscences of Herbert Crouch, 1869-1918
(Xerographed from handwritten notebook loaned by his granddaughter, Mrs. Harry Sturr (Mary Sawday) and owned by Mrs. George Sawday. (Bound). San Diego Public Library, San Diego 1963.

Mr. Crouch was a sheep herder and lived in the County near Oceanside. He kept records of rainfall and kept a diary which he later enlarged. First hand reports of floods in North County.

F. ORAL INTERVIEWS

Burns, Mrs. Theodore, personal interview, San Diego 18 May, 1968 with the author. A native daughter of a native daughter.

Lockhead, unknown, telephone interview, San Diego, 28 May 1968, with the author. Mr. Lockhead is in the Engineering Dept. of the City of San Diego and supplied up-to-date information on the Mission Valley Flood Control project.

Minor, Mrs. Jones, personal interview, San Diego, 13 May 1968 with the author. A resident for 26 years.

Papageorge, Andrew J., personal interview, San Diego, 10 May 1968, with the author. Spent part of his childhood in San Diego.

Sims, Mrs. Robert, personal interview, San Diego, 13 May 1968, with the author, a resident for 38 years.

APPENDIX VI

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RESOURCES ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Three of the historic places discussed in the preceding report are already listed in the National Register of Historic Places: Mission San Diego de Alcala, Mission Dam, and the San Diego Presidio; and within Old Town State Park the more important buildings, among them the Estudillo House, have already been listed. One other historic resource is discussed which should be nominated for the National Register: the San Diego Flume. The flume route represents a major accomplishment in the control of an adequate water supply in the Southern California region.

One area of prehistoric archaeological resource should be nominated as an archaeological district. This district would be approximately four miles of the San Diego River Valley west of El Capitan Dam, and would include sites SDR-1 through 15 and site W-231. These sites, except W-231, are relatively undisturbed, and include features, such as pictographs, pitted boulders, bedrock milling features, and an assortment of artifacts, which are representative of the late prehistoric occupation of the region. Site SDR-12 is the largest and best preserved of these sites, and its value is multiplied when considered together with the other 16 sites, since this complex of sites reveals much more of the late prehistoric life pattern than a single site.

Other prehistoric sites, SDR-21, W-200/200A, and W-547, are also of major significance, but are probably not well enough preserved to qualify for the National Register of Historic Places.